PROPOSED

Revised PM_{10} State Implementation Plan for the Salt River Area

AIR QUALITY DIVISION

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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CHAPTER 1: INTRODUCTION

1.1 OVERVIEW

In a rule published July 2, 2002, EPA found the Arizona Department of Environmental Quality's (ADEQ's) *Plan for Attainment of the 24-Hour PM_{10} Standard – Maricopa County PM_{10} Nonattainment Area* (May 1997), inadequate to achieve attainment of the 24-hour National Ambient Air Quality Standards (NAAQS) for particulate matter 10 microns or fewer in aerodynamic diameter (PM_{10}) at the Salt River monitoring site. The 1997 ADEQ SIP revision included attainment and Reasonable Further Progress (RFP) demonstrations for the 24-hour NAAQS at the Salt River air quality monitoring site of the Maricopa County PM_{10} Serious Nonattainment Area, as well as at three other monitoring sites in the Phoenix area, - the Maryvale, Gilbert, and West Chandler sites. On August 4, 1997, EPA approved ADEQ's attainment and RFP demonstrations for the Salt River monitoring area, which showed that the 24-hour PM_{10} NAAQS would reach attainment in the area by May 1998 (62 FR 41856, August 4, 1997). Due to continuing violations of the 24-hour PM_{10} NAAQS at the Salt River air quality monitoring site since May 1998, EPA subsequently required Arizona to submit a revision to correct SIP inadequacies (67 FR 44369, July 2, 2002).

This document consists of Arizona's revisions to the state implementation plan for the Maricopa County PM_{10} Serious Nonattainment Area and includes the following SIP requirements, as described by EPA in its Federal Register notice of disapproval (67 FR 44369, July 2, 2002):

- A modeling demonstration showing that the level of emissions reductions from application of Best Available Control Measures (BACM) / Most Stringent Measures (MSM) for all significant sources of PM_{10}, will result in attainment of the 24-hour National Ambient Air Quality Standards (NAAQS) by December 31, 2006, at the Salt River PM_{10} monitoring site (in accordance with CAA §§ 189(b)(1)(A) and 188(e));

- Commitments to implement BACM/MSM for sources significantly contributing to exceedances of the 24-hour PM_{10} standard in the Salt River area as expeditiously as possible (CAA § 189(b)(1)(B)), and a commitment that all BACM and MSM control measures adopted and applied to sources in the Salt River Study Area will be applied to all similar sources throughout the Maricopa County PM_{10} Serious Nonattainment Area;

- A demonstration that the plan constitutes Reasonable Further Progress (RFP) up to the attainment deadline, December 31, 2006; and

- A demonstration that all the requirements of the federal Clean Air Act Amendments (CAA) that pertain to serious PM_{10} nonattainment areas are met (including CAA §§ 110(l), 110(a)(2)(E)(i), 40 CFR §§ 51.280, and 51.111).

1.2 BACKGROUND

1.2.1 REGULATORY HISTORY OF THE MARICOPA COUNTY PM_{10} NONATTAINMENT AREA

On November 15, 1990, Congress enacted the 1990 Clean Air Act Amendments, in accordance with the provisions of which, EPA classified U.S. PM10 nonattainment areas meeting the qualifications of CAA § 107(d)(4)(B), including the Maricopa County PM10 Nonattainment Area, as moderate PM10 nonattainment areas, by operation of law. Pursuant to the provisions of the 1990 CAA § 188(a), EPA required that Arizona, and other U.S. moderate PM10 nonattainment areas,

demonstrate attainment of the PM_{10} NAAQS by December 31, 1994. On November 15, 1991, Arizona submitted its moderate area PM_{10} plan to EPA.

In 1995, EPA issued final approval to Arizona's moderate area PM_{10} state implementation plan, (60 FR 18010, April 10, 1995). The revised SIP provided PM_{10} control measures applicable to sources including paved roads, construction and demolition activities, unpaved parking areas and roads, nonmetallic mineral mining and processing facilities, open burning activities, uncovered haul trucks and farming operations. On April 27, 1995, Arizona Center for Law in the Public Interest (ACLPI) filed suit (*Ober v. EPA*) challenging EPA's approval of Arizona's 1991 particulate plan, due to the plan's failure to address the 24-hour PM_{10} NAAQS standard. The suit, filed in Tucson Federal District Court, requested that the Court order EPA to produce a Federal Implementation Plan (FIP).

Due to continued exceedances of both the annual and 24-hour PM_{10} NAAQS, and failure of the area to attain the PM_{10} NAAQS by the December 31, 1994, deadline for moderate nonattainment areas, EPA reclassified the Phoenix Planning Area as a "serious" nonattainment area for PM_{10}, by operation of law, on May 10, 1996 (61 FR 21372, May 10, 1996). The action allowed Arizona 18 months to develop a new state implementation plan that would provide for attainment of the PM_{10} NAAQS by December 31, 2001, the CAA attainment date for serious nonattainment areas.

On May 14, 1996, the U.S. Ninth Circuit Court of Appeals vacated EPA's 1995 approval of Arizona's moderate PM_{10} plan, and on March 25, 1997, the U.S. District Court approved a consent decree that required EPA to propose a Moderate Area Federal Implementation Plan (FIP), if EPA disapproved all or part of ADEQ's 24-hour PM_{10} plan. On August 4, 1997, EPA partially approved and partially disapproved ADEQ's microscale plan, the *Plan for Attainment of the 24-Hour PM_{10} Standard – Maricopa County PM_{10} Nonattainment Area*, submitted May 9, 1997 (62 FR 41856, August 4, 1997).

On December 10, 1997, Arizona submitted the Maricopa Association of Government's (MAG's) *Serious Area Committed Particulate Control Measures for PM_{10} and Support Technical Analysis*. On February 25, 1998, EPA found that Arizona had failed to submit: the regional moderate PM_{10} area requirements for the 24-hour PM_{10} standard; the serious area plan requirements for the annual PM_{10} standard; and the regional serious area requirements for the 24-hour standard, the deadline for each of which was December 10, 1997. EPA's action triggered the 18-month time clock for mandatory application of sanctions, and a two-year FIP clock (63 FR 9423, February 25, 1998).

On August 3, 1998, in accordance with the requirements of *Ober v. EPA* consent decree, EPA published a FIP to address moderate area PM_{10} requirements in the Maricopa County PM_{10} Nonattainment Area, under the authority of CAA § 110(c)(1). By this action, EPA finalized disapproval of Arizona's moderate area plan RACM, RFP, and impracticability demonstrations; and required that Arizona demonstrate that: it could not meet PM_{10} standards by the statutory deadline; that RACT would be implemented expeditiously and that RFP standards were being met. In addition, EPA set forth a fugitive dust rule to control PM_{10} emissions from vacant lots, unpaved parking lots, and unpaved roads, as well as an enforceable commitment to ensure the application of RACM to agricultural sources in the Phoenix area (63 FR 41326, August 3, 1998).

MAG's Regional Council adopted the MAG 1999 *Serious Area Particulate Plan for PM_{10}*, June 23, 1999. The Plan contained approximately 77 state and local government control measure commitments.

On June 29, 1999, EPA withdrew its August 1998 FIP requirement that Arizona adopt and implement RACM for agricultural fields and aprons in the Maricopa County PM_{10} nonattainment

area, due to Arizona's adoption of legislation requiring that agricultural sources implement best management practices (BMP), which EPA determined were compliant with CAA RACM requirements, to control fugitive dust in the area (64 FR 34726, June 29, 1999). On July 9, 1999, ADEQ submitted MAG's plan to EPA.

In November 1999, EPA notified MAG of deficiencies in its *Serious Area Particulate Plan for PM_{10}*, submitted in June 1999, sufficient to cause EPA disapproval of the proposed SIP revision. EPA indicated that the SIP inadequacies related to the level of source compliance that the SIP assumed with respect to Maricopa County's two fugitive dust rules, and the absence, or insufficiency, of controls the SIP provided to address fugitive dust from public and private unpaved roads.

In its February 16, 2000 *Revised MAG 1999 Serious Area Particulate Plan for PM_{10} for the Maricopa County Nonattainment Area*, MAG demonstrated attainment of both the annual and 24-hour PM_{10} standards. In response to the deficiencies noted by EPA, and to address the SIP approvability problem, MAG amended its Transportation Improvement Program for fiscal year 2000-2004, including a program to pave Maricopa County public, and publicly-maintained, dirt roads and allocated funding for, and committed to, the purchase of PM_{10}-efficient street sweepers. In addition, Maricopa County has adopted a Resolution strengthening enforcement of its fugitive dust rules which is in SIP Appendix D, along with an Inspection Strategy.

In recent, additional actions, EPA approved or proposed approval of the following control measures for the Maricopa County PM_{10} Nonattainment Area:

- In response to the requirements of CAA § 110(a) and Part D, Arizona rules (Maricopa County Rule 318, "Approval of Residential Woodburning Devices," and the Maricopa Residential Woodburning Restriction Ordinance, adopted April 21, 1999) controlling particulate matter emissions from residential wood combustion in the Maricopa County PM_{10} Nonattainment Area. EPA's ruling incorporated the rules into the federally-approved Arizona State Implementation Plan (approval, 64 FR 60678, November 8, 1999);

- In response to the requirements of CAA § 189(a)(1)(C), a general permit rule (A.R.S. 49-457, approved as RACM) providing for the implementation of Best Management Practices (BMPs) to reduce PM_{10} from agricultural sources in the Maricopa County PM_{10} Nonattainment Area, in a revision to the Arizona State Implementation Plan (approval, 66 FR 51869, October 11, 2001); and

- Revisions to the Arizona Cleaner Burning Gasoline (CBG) program currently approved in the Arizona State Implementation Plan, which will replace Arizona's interim CBG program with a permanent program, amend the wintertime CBG program to limit the types of gasoline that may be supplied, and remove the minimum oxygen content requirement for summertime gasoline (proposed approval, 68 FR 55920, September 29, 2003).

On July 2, 2002, EPA found the controls proposed in ADEQ's May 1997 *Plan for Attainment of the 24-Hour PM_{10} Standard – Maricopa County PM_{10} Nonattainment Area*, inadequate to ensure the attainment of the PM_{10} NAAQS at the Salt River air quality monitoring sites. The finding of inadequacy included the SIP's attainment and RFP demonstrations for the 24-hour PM_{10} standard at the Salt River monitoring sites, as well as for three other microscale sites in the Maricopa County PM_{10} Nonattainment Area (Maryvale, Gilbert, and West Chandler).

Although EPA approved Arizona's 1997 SIP revision, and additional required controls proposed by MCESD on August 4, 1997 (62 FR 41856), EPA's Aerometric Information Retrieval System (AIRS) continued to show exceedances at the Maricopa County PM_{10} Nonattainment Area Salt River site, recording expected exceedances in 1999, 2000, and through three quarters of 2001. EPA required Arizona to submit a SIP revision to identify and implement corrective PM_{10} control provisions in the Salt River Study Area, and for similar, significant sources in the Maricopa County PM_{10} Nonattainment Area (67 FR 44369, July 2, 2002). Arizona's SIP revision was due to EPA 18 months following the effective date of its action, or by February 2, 2004, to provide for attainment in the Salt River site, no later than December 31, 2006, in accordance with CAA §§ 189(b)(1)(A), and 188 (e).

Also in July 2002, EPA approved Arizona's serious area PM_{10} plan for the Maricopa County part of the Maricopa County PM_{10} Nonattainment Area; granted Arizona's request to extend the CAA deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006; and approved the Maricopa County Environmental Services Department's (MCESD's) fugitive dust rules, Residential Woodburning Restrictions Ordinance, and commitments by Maricopa County jurisdictions to implement PM_{10} controls (67 FR 48718, July 25, 2002).

1.2.2 PM_{10} NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

In promulgating its initial particulate matter standards in 1971, EPA published primary and secondary particulate standards applicable to, "total suspended particulates" ("TSP") which applied to airborne suspended particulate matter, without reference to particle size. The primary, or "health-based," standards established 260 micrograms per cubic meter (μ/m^3), as the 24-hour average standard, not to be exceeded more than once annually. EPA established a separate primary annual TSP standard, 75 μ/m^3, determined by calculation of annual geometric mean measurements. The secondary standard, designed to protect public welfare, was established at 150 μ/m^3, calculated as a 24-hour average, and not to be exceeded more than once per year.

On July 1, 1987, EPA replaced the concept of TSP, focusing on particulate matter 10 microns in diameter or smaller, or PM_{10}, as the applicable ambient standards (at 52 FR 24634). In addition, EPA collapsed the primary and secondary standards into one set of standards to protect both public health and welfare. EPA's 1987 standard established150 μ/m^3, as the new 24-hour standard, with no more than one expected exceedance annually; and 50 μ/m^3, as the expected annual arithmetic mean, as the new annual standard.

July 18, 1997, EPA revised the 1987 24-hour NAAQS standards applicable to PM_{10}, specifying that the 24-hour PM_{10} standard would be based on the 99^{th} percentile of 24-hour concentrations at each monitor within an area, and added separate standards applicable to particulate matter 2.5 micrometers or fewer in diameter, or $PM_{2.5}$ (62 FR 38652, July 18, 1997). The new standards were issued to provide increased protection to the public, especially children, the elderly, and other at-risk populations. On December 22, 2000, following a ruling of the U.S. Court of Appeals for the District of Columbia Circuit, EPA took final action to remove 40 CFR § 50.6(d) from federal regulations applicable to national primary and secondary ambient air quality standards for PM_{10}, since the Court had decided that the particulate standards, as revised in 1997, constituted double regulation of the $PM_{2.5}$ component of the PM_{10} NAAQS (65 FR 80776). The PM_{10} rules in 40 CFR § 50.6(a) and (b) remained in effect, however.

The current PM_{10} standards are as set forth at 40 CFR § 50.6. The primary and secondary 24-hour PM_{10} NAAQS standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μ/m^3, is equal to or less than one.

1.2.3 LOCATION OF THE MARICOPA COUNTY PM_{10} NONATTAINMENT AND SALT RIVER STUDY AREAS

EPA formally designated Maricopa County as nonattainment for particulate matter in April 1974. On March 3, 1978, EPA published a list of Total Suspended Particulate (TSP) nonattainment areas, in accordance with 1977 Clean Air Act Amendment requirements (43 FR 8964). The March 1978 EPA ruling identified the area of Maricopa County as nonattainment for TSP.

EPA later replaced TSP standards with new standards that applied only to particulate matter ten microns or fewer in diameter (52 FR 24634, July 1, 1987). On August 7, 1987, EPA identified the Phoenix Planning Area as a "Group I" area, an area highly likely to violate the new NAAQS standards for PM_{10} (52 FR 29383). On October 31, 1990, EPA provided technical corrections to clarify the descriptions of the PM_{10} areas of concern, after collecting data on area source emissions, and ambient PM_{10} concentrations; identifying control measures; and predicting future PM_{10} concentrations using dispersion models (55 FR 45799, October 31, 1990).

The October 1990 technical corrections defined the boundaries of many U.S. PM_{10} nonattainment areas, including the Phoenix Planning Area PM_{10} Nonattainment Area. The Phoenix Planning Area boundaries exist today as EPA defined them in October 1990. For the purposes of this SIP, the Phoenix Planning Area is referred to as the Maricopa County PM_{10} (Serious) Nonattainment Area (geographically defined in Table 1.2.3). Figure 1.2.3-A (page 15) depicts the geographical area encompassing the Maricopa County PM_{10} Nonattainment Area.

Table 1.2.3 Maricopa County PM_{10} Nonattainment Area, Maricopa and Pinal Counties	
Located in Maricopa and Pinal Counties, the Phoenix Planning [Maricopa County] PM_{10} Nonattainment Area is defined as the rectangle determined by and including the Townships and Ranges as noted, below.[1]	
T6N, R3W	The Phoenix Planning Area was designated as a moderate PM_{10} nonattainment area, November 15, 1990, and as a serious PM_{10} nonattainment area, June 10, 1996.
T6N, R7E	
T2S, R3W	
T2S, R7E	
T1N, R8E	

Source: 40 CFR § 81.303, 1978, as amended at 55 FR 45799, October 31, 1990

The Salt River Study Area portion of the Maricopa County PM_{10} Nonattainment Area contains approximately 32 square miles in metropolitan Phoenix, which is in the center of the Salt River Valley. The study area is bounded by 59th Avenue to the west; 10th Street, to the east; Van Buren Street to the north; and Baseline Road, to the south (see map of the Salt River Study Area, Figure 1.2.3-B, page 16).

1.2.4 PHYSICAL GEOGRAPHY, SOILS, CLIMATE, AND METEOROLOGY OF METROPOLITAN PHOENIX, AND THE SALT RIVER STUDY AREA

Physical Geography

[1] Although EPA finalized the rule that defined the current boundaries of the Phoenix Planning Area at 57 FR 56714, on November 6, 1992, ADEQ will seek a technical correction of the EPA-defined boundaries, based on a 1991 Arizona boundary submittal request.

The normally-dry, Salt River Channel crosses the study area at about mid-point, east to southwest. Although once a natural perennial stream with mesquites, willows, and cottonwood trees, the Salt River is now a dry river that has been altered by levee work and channelized along different parts of the river. The Salt River is classified as an ephemeral stream, since flows result from controlled water releases from dams many miles upstream, as well as rainfall and local sources discharge into the dry river channel.[2] The form of the Salt River channel is directly related to past regional flood events and human activities, such as sand and gravel mining.

From a broad geographic perspective, Phoenix is located in the Basin and Range Province, which is one of three provinces comprising the Intermontane Plateaus Major Division. The Basin and Range Province begins south of the Columbia Plateaus and comprises most of Nevada and portions of Oregon, California, Idaho, Utah, and southern Arizona. In Arizona, the Basin and Range Province, which runs in a northwest-southeast direction across the state, is divided into the Mexican Highlands section to the north and the Sonoran Desert section to the south that extends southward into Sonora, Mexico, and Baja, California. This physiographic province is characterized by several linear basins filled with debris from surrounding mountains, composed of metamorphosed sedimentary and volcanic rocks or of intrusive granite rocks. Typically, these are fault-block mountains formed by faulting and tilting of the earth's crust.

The basins in the province are filled with thick deposits of gravel, sand, silt, clay, and other sediments as a product of continental sedimentation. The result is desert rangelands over basin floors. Several small mountain ranges with relatively small geographic coverage, rise above the desert floor with elevations ranging from approximately 2,600 to 4,500 feet above mean sea level, surrounding the metropolitan Phoenix area: the South Mountains are located six miles to the south (T1S, R3E, Section 21); 18 miles to the southwest lie the Sierra Estrella Mountains (T2S, R1E, Section 8); eight miles to the north are the Phoenix Mountains with Piestewa Peak (T2N, R3E, Section 2); and 30 miles to the west-northwest, and north-northeast, 6 miles, respectively, lie the White Tank Mountains (T3N, R3W, Section 28), and Camelback Mountain.

Although the elevation of Phoenix is approximately 1,100 feet above sea level, elevations vary from one direction to another with increasing elevations to the east. The following illustrates how elevation contours change within the study area.

Soils

Phoenix is located in the northern edge of the Sonoran Desert in a large alluvial basin. The region is arid, consisting of stream-carved valleys with alluvial sands, playa deposits, gravels, and sedimentary formations. The Sonoran Desert contains more species of plants and animals than any other desert in North America. The distribution of plants, which is related to the plant life in the regions south and west, is dependent on a variety of interacting environmental factors (e.g., temperature, precipitation, soil, and slope). It contains, for example, a variety of cacti (e.g., saguaro, organ pipe, cholla), wild flowers, bushes, trees, and grasses. Native vegetation includes mesquite, catclaw, creosote bush, cacti, bursage, ironwood, arrowweed, saltbush, desert thorn, annual grasses, and weeds. Plant invasion from other proximate vegetation associations have reduced the area covered by grasslands and altered other vegetation. Invasions include woody species and

[2] Phoenix is located in the lowlands hydrologic province. Reservoirs hold the perennial streams of the Central Highlands hydrologic province which lies north and northeast of Phoenix. The Roosevelt Dam, which was completed in 1911, was the first Reclamation Service project. It dammed off the Salt River about 60 miles to the east. Three more dams were built on the Salt River between 1923 and 1930: Mormon Flat Dam, Horse Mesa Dam, and Stewart Mountain Dam. A project that raised the elevation of Roosevelt Dam reduced peak flows and flow duration down the Salt River.

changes in the mix and density of nonwoody species of plants. The area also has ephemeral vegetation due to the biseasonal precipitation distribution in the Sonoran Desert.

Soil types found in Maricopa County are classified as Hyperthermic Arid, based on temperature and precipitation zones. These soils have a mean annual soil temperature of 72° F or higher and receive less than 10" of mean annual precipitation.[3] These soils are found at the lower elevations in the western and southwestern part of the state, covering about 27 percent of Arizona.

Ten subgroup associations comprise Hyperthermic Arid soils. The Torrifluvents Association is comprised of well-drained soils formed in sandy to clayey recent mixed alluvium on floodplains and adjacent lower alluvial fans, for example, of the lower Salt River. The soil classification under this association is the "Typic Torrifluvents" that can be described as stratified, coarse to finely textured on nearly level to gently sloping hills from elevations of 100 to 2,500 feet.[4]

The Salt River Study Area mainly contains soils formed from floods. The stream channels and terraces in the Salt River, for example, mainly is comprised of Carrizo-Brios soil, characterized as nearly level to gently sloping gravelly sandy loams and sandy loams. The remaining soil in the Salt River Study Area is comprised of Gilman-Estrella-Avondale soil, characterized as nearly level loams and clay loams on valley plains and low stream terraces. Only a very small area in the southern part of the study area is comprised of Laveen-Coolidge and Mohall-Laveen soils. These soils are characterized as nearly level sandy loams, loams, and clay loams on old alluvial fans and valley plains.[5] Other soil classifications comprise several other associations found in Maricopa County. These soils range from fine to coarse or gravelly textured soils on broad valley plains and shallowly dissected alluvial fans and valley slopes.

Climate and Meteorology

The greater Phoenix area experiences hot summers and relatively warm winters, with fewer weather changes than most parts of the U.S. The average daily maximum temperature in July is 105.9° F (Fahrenheit), and the average low temperature in January is 41.2° F. The year-round average temperature is 72.6° F, with daily normal high and low temperatures of 85.9° F and 59.3° F, respectively. The Phoenix metropolitan area receives about 300 days of sunshine per year, while average annual rainfall is fewer than eight inches, with overall low humidity (see Table 1.2.4).

The climate and meteorology for the Salt River Study Area is representative of the climate in metropolitan Phoenix, as well as of the southwestern one-third of Arizona. Different classification schemes for describing climate are in use. The schemes consider such climatologic conditions as temperature, wind, precipitation, humidity, and visibility. According to the Köppen classification system, Phoenix is classified as an arid subtropical climate.[6] The arid subtropical climate describes the climate of the southwestern one-third of Arizona.

[3] For this classification, the difference between mean summer and mean winter temperatures must be greater than nine degrees Fahrenheit, at a depth of 20 inches, or at soil / bedrock interface.

[4] *Arizona Soils*, David M. Hendricks, College of Agriculture, University of Arizona, 1985

[5] *Soil Survey of Maricopa County, Arizona Central Part*, Soil Conservation Service, September, 1977.

[6] This climate zone encompasses one-third of southwestern Arizona, including the low valleys tributary to this region. The arid subtropical climate, represented by a January mean temperature greater than 32° F, is one of six different climatic types.

Table 1.2.4 Metropolitan Phoenix Meteorological Characteristics[7]				
Month	**Mean Monthly Temperature (in Degrees F)**	**Mean Monthly Rainfall (in Inches)**	**Mean Monthly Wind Speed (in Miles/Hour)**	**Monthly Wind Direction**
January	53.6°	0.67”	5.3 mph	E
February	57.7°	0.68”	5.9 mph	E
March	62.2°	0.88”	6.6 mph	E
April	69.9°	0.22”	6.9 mph	E
May	78.8°	0.12”	7.0 mph	E
June	88.2°	0.13”	6.8 mph	E
July	93.5°	0.83”	7.1 mph	W
August	91.5°	0.96”	6.6 mph	E
September	85.6°	0.86”	6.3 mph	E
October	74.5°	0.65”	5.1 mph	E
November	61.9°	0.66”	5.3 mph	E
December	54.1°	1.0”	5.1 mph	E
Annual	72.6°	7.66"	6.2 mph	E

Source: *General Geographical and Climatological Summary* (http://geography.asu.edu.cerveny/wxpart1.html); the Western Regional Climate Center provided monthly mean wind speed and wind direction data (www.wrcc.dri.edu/)

Phoenix has two separate rainfall seasons. One season is represented by the winter months, November through March, when the valley is subject to storms from the Pacific Ocean. Light snow occasionally falls in the higher mountains surrounding the Salt River Valley. The other rainfall season, known as the “monsoon” season, occurs during the summer, especially, July and August. The remaining months generally are dry, but rainfall has been recorded during every month of the year.

During the summer, monsoon air masses swell north, starting at the Gulf of Mexico, Pacific Ocean, or West Coast of Mexico and Gulf of California. Unstable air moves into Arizona from the southeast over heated land surfaces and yields moderate afternoon or evening thunderstorms. This can occur when the Pacific high-pressure cell off the West coast moves northeast in late June and the southwestern region of the U.S. receives air flow from the Gulf of Mexico on the southwest side of a high pressure cell that protrudes from the Atlantic Ocean into the central part of the U.S. Because Arizona's monsoon air masses do not show typical monsoon frontal characteristics, Arizona's monsoons are not as severe as elsewhere. Seasonal changes occur in the wind directions affecting Phoenix, from westerly to southerly wind, during July through early September. Thunderstorms can be intense at times creating heavy rain, destructive winds, blowing dust, and flash flooding. During these times, normally dry river channels can drain heavy rains.

April weather in the Phoenix area is normally very dry, and the monthly average rainfall total is the third driest of the year. Maximum daytime temperatures of 90° F or more are commonplace, and occasionally exceed 100° F. The evaporation rate is high. Dry local weather conditions combine with disturbed soil surfaces to cause the release of fugitive dust during high wind events, due to dry

[7] In Table 1.2.4, temperature is shown in degrees Fahrenheit, and rainfall in inches per month. The monthly mean temperatures reflect 1961-1990 data. The mean monthly rainfall depicts 1896-1995 data.

frontal passages. In these situations, eastward-moving, mid-latitude cyclones produce strong surface pressure gradients and associated strong winds aloft mix down to the surface, resulting in southwesterly to westerly winds in the 25 to 35 mph range. Since no rain and little if any cloud cover accompany these episodes, there is little moisture available to mitigate blowing and airborne dust particles.

The alluvial basin of the Salt River Valley is generally free of strong winds. In spring months, southwesterly and westerly winds predominate, associated with low-pressure troughs. During the summer rainy season, local, strong, gusty winds can occur with blowing dust, which may or may not be accompanied by rainfall. At that time, winds generally originate from the northeast to southeast, and very often, remain under ten miles per hour. The heat and lack of moisture experienced in Phoenix during the summer are conducive to the generation of airborne dust. During July and August, humidity increases and there can be afternoon and evening cloudiness associated with cumulus clouds over the mountains surrounding the Salt River Valley.

1.2.5 POPULATION, ECONOMY, AND LAND USE DATA

The City of Phoenix is one of the fastest growing metropolitan areas in the U.S. The 2002 estimated population is 1,365,675. Since 1970, Phoenix has grown 126 percent, representing a numerical gain of 736,742 inhabitants. In 2000, Phoenix was ranked as the 6th largest city in the U.S.[8]

Arizona's climate and recreational venues have attracted many new residents, as well as tourists and winter visitors that spend part of their time living in metropolitan Phoenix. In 2000, the Phoenix-Mesa-Scottsdale Metropolitan Statistical Area (MSA), which is comprised of Maricopa and Pinal counties, ranked 14th in the U.S., for population.[9] The MSA contains 22 cities, once separate communities that have coalesced to form the metropolitan area. According to Census 2000, Maricopa County gained the most number of people numerically, ranking it as the fourth largest county in the nation.

The Salt River Study Area is similar to other metropolitan areas, in that a variety of land uses and activities coexist. Land uses in the Salt River Study Area include: urban, and urban development: residential, commercial, government, educational, public cultural, and industrial. The development phase of these various urban land uses, at times, necessarily entails different types of vacant lands, either under construction, awaiting construction, or with construction in progress. Agriculture represents another land use noted in the Salt River Study Area. The area contains irrigated croplands used to cultivate: cotton, grains, alfalfa, sugar beets, pasture grasses, vegetables, citrus, and those used as pasture, and rangelands. The continuing, speedy growth of metropolitan Phoenix has resulted in a steady decline in the number of acres of land dedicated to agricultural use, over the past several decades. Between 1987 and 1997, agricultural land use in Maricopa County declined approximately 49 percent - from 1,391,456 acres used for agriculture, to 708,656 acres.[10]

The Department of Economic Security's projection series of 1997 indicates that the population of Phoenix will grow by 36 percent over the 2000 to 2020 period. Table 1.2.5 contains population projections in five-year intervals beginning with 2005. For reference, the 2000 Census counts and the 2002 mid-year population estimates are also included in Table 1.2.5, below.

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[8] U.S. Census Bureau, County and City Data Book 2000: Table C-1.
[9] U.S. Census Bureau, Census 2000 Redistricting Data (P.L. 94-171) Summary File, Internet release date, April 2, 2001.
[10] Arizona Agricultural Statistics Service, "2002 Arizona Agricultural Statistics Bulletin" (September 2003), "Census Farm Numbers and Land in Farms by County," page 6.

Table 1.2.5 Population Projections						
Designation	**2000 Census**	**2002 Estimate**	**2005 Projection**	**2010 Projection**	**2015 Projection**	**2020 Projection**
Phoenix-Mesa-Scottsdale MSA	3,251,876	3,488,645	3,511,048	3,909,281	4,317,999	4,747,319
Phoenix	1,321,045	1,365,675	1,415,330	1,544,093	1,641,489	1,795,539
State Total	5,130,632	5,472,750	5,553,849	6,145,108	6,744,754	7,363,604

Source: US. Census Bureau, Census 2000; Population Statistics Unit, Research Administration, Department of Economic Security (DES), Approved by Director August 1, 1997 and December 6, 2002.[11]

1.2.6 GENERAL SIP REQUIREMENTS - THE 1990 CLEAN AIR ACT AMENDMENTS (CAA)

Clean Air Act § 110(l)

Clean Air Act § 110(l), "[Implementation] Plan Revisions," requires that each revision to an implementation plan submitted by a state be adopted by the state after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in CAA § 171), or any other applicable requirement of this Act.

Arizona will implement the provisions of this SIP revision, as required by CAA § 110(l), after reasonable notice and public hearing, and commits to the continuing development of the appropriate state and local control measures for adoption and implementation that will promote attainment of the 24-hour PM_{10} NAAQS in the Salt River PM_{10} Study Area, and Maricopa County PM_{10} Nonattainment Areas.

Clean Air Act § 110(a)(2)(E)(i)

Clean Air Act § 110(a)(2)(E)(i), "Implementation Plans," requires that state and/or local governments, and/or regional agencies, demonstrate to the Administrator that such entities will have adequate personnel, funding, and authority under appropriate law, to carry out the subject implementation plan, or plan revision.

Arizona commits to working with other jurisdictions in the Maricopa County PM_{10} Nonattainment Area, so that the resultant controls are affordable, efficient and necessary to address under-controlled sources of emissions.

40 CFR §§ 51.280, and 51.111

Subpart O of the Code of Federal Regulations, "Miscellaneous Plan Content Requirements," requires that state and local agencies, at implementation plan submission, include descriptions of the resources needed to carry out plan implementation during the five-year period following plan submission.

Arizona commits to describing the resources that will be necessary to carry out implementation of the plan provisions that state, county, and local jurisdictions eventually adopt and implement.

[11] Phoenix population projections approved by MAG Regional Council on June 25,1997.

Subpart G of the Code of Federal Regulations, "Description of Control Measures," requires that each plan set forth a control strategy that includes a description of enforcement methods including, but not limited to: (1) procedures for monitoring compliance; (2) procedures for handling violations; and (3) a designation of agency responsibility for enforcement of implementation.

Arizona commits to the description of control strategy enforcement methods to be implemented when control strategy commitments are finalized and adopted by the various affected jurisdictions.

Clean Air Act § 172(c)(1)

Clean Air Act § 172(c)(1), "Nonattainment Plan Provisions," requires that, "…plan provisions shall provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology) and shall provide for attainment of the national primary ambient air quality standards."

SIP Chapter 4, and Appendix C, describe the proposed BACM/MSM control measures that Arizona has identified, and proposed implementation of, in the Salt River PM_{10} Study Area, and for similar significant sources, throughout the Maricopa County PM_{10} Nonattainment Area.

Clean Air Act § 172(c)(2)

Clean Air Act § 172(c)(2), "RFP," requires that plan provisions shall demonstrate Reasonable Further Progress (RFP) such that annual incremental reductions in emissions ensure attainment of the 24-hour NAAQS for PM_{10} by the applicable attainment deadline. For the purposes of this SIP, the applicable deadline is December 31, 2006.

In Chapter 6, Arizona provides an RFP demonstration, as required by CAA § 172(c)(2), and in Chapter 4 and Appendix C, Arizona commits to the adoption of BACM/MSM controls to provide for attainment of the 24-hour NAAQS for PM_{10} by the applicable attainment deadline.

The Revised *PM_{10} State Implementation Plan for the Salt River Area*, which addresses general PM_{10} control in the Salt River Study Area and the Maricopa County PM_{10} Nonattainment Area, does not affect the Regional Transportation Plan or transportation conformity budget for PM_{10}. The PM_{10} Regional Transportation Plan and transportation conformity budget represent on-road mobile source emissions in the Maricopa County portion of the PM_{10} Nonattainment Area, an area of about 2,850 square miles.

Clean Air Act § 172(c)(3)

Clean Air Act § 172(c)(3), "Inventory," requires that plan provisions, "…include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area, including such periodic revisions as the Administrator may determine necessary to assure that the requirements of this part are met."

Chapter 3, and the Technical Support Document (TSD) that accompany this SIP explain how ADEQ developed and maintains historical and current databases of actual emissions from Salt River PM_{10} Study Area point and area sources, including those permitted by Maricopa County, the permitting authority in the Maricopa County PM_{10} Nonattainment Area. Arizona also commits to periodic

revisions as may be required by the EPA Administrator to assure that a comprehensive, accurate, and current inventory is maintained for the Salt River PM_{10} Study Area.

Clean Air Act § 172(c)(4)

Clean Air Act § 172(c)(4), "Identification and Quantification," requires that state implementation plan provisions shall expressly identify and quantify the emissions of the pollutant or pollutants that will be allowed, in accordance with CAA § 173(a)(1)(B), from the construction and operation of major new or modified stationary sources in each area under review. The CAA requires that the plan shall demonstrate to the satisfaction of the Administrator that the emissions quantified for this purpose will be consistent with the achievement of reasonable further progress, and will not interfere with attainment of the applicable NAAQS, by the applicable deadline date.

This emissions inventory modeling for this SIP quantifies the reductions in current emissions required to achieve attainment of the 24-hour PM_{10} NAAQS in the Salt River PM_{10} Study Area. ADEQ commits to provide all appropriate future emissions inventories to quantify emissions allowable for any future sources of PM_{10} emissions in the Salt River Study Area, and in Maricopa County Nonattainment Area.

Clean Air Act § 172(c)(5)

Clean Air Act § 172(c)(5), "Permits for New and Modified Major Stationary Sources," requires that the state implementation plan shall require permits for the construction and operation of new and modified major stationary sources throughout the nonattainment area.

All new sources and modifications to existing sources in Arizona are subject to state requirements for preconstruction review and permitting pursuant to Arizona Administrative Code (A.A.C.), Title 18, Chapter 2, Articles 1 through 5. All new and major sources and modifications to existing major sources in Arizona are subject to the New Source Review (NSR) provisions of these rules or Prevention of Significant Deterioration (PSD) for maintenance areas. The state NSR program was conditionally approved by EPA in1992, and is pending final approval. ADEQ currently has full approval of its Title V permit program.

Clean Air Act § 172(c)(6)

Clean Air Act § 172(c)(6), "Other Measures," requires that plans include enforceable emissions limitations and such other control measures, means or techniques, as well as schedule and timetables for compliance, as necessary, consistent with the commitments for the adoption of BACM/MSM control measures.

Arizona commits to a program of enforceable emissions limitations and other control measures, means, techniques, schedules, and timetables for compliance, as necessary.

Clean Air Act § 172(c)(7)

Clean Air Act § 172(c)(7), "Compliance with Section 110(a)(2)," requires that plan provisions shall meet the applicable provisions of CAA § 110(a)(2). Arizona commits to demonstrating compliance with CAA § 110(a)(2), "State Implementation Plans."

Clean Air Act § 172(c)(8)

Clean Air Act § 172(c)(8), "Equivalent Techniques," requires that a plan use equivalent techniques, such as equivalent modeling, emission inventory, and planning procedures allowed by the Administrator, upon application by a state. No equivalent techniques were used in the development of this SIP.

Clean Air Act § 172(c)(9)

Clean Air Act § 172(c)(9), "Contingency Measures," requires that the plan provide for the implementation of specific measures to take effect without further action by the state or the Administrator in the event the area fails to make reasonable further progress or attain the primary national ambient air quality standards.

Chapter 6 of this SIP contains a review of the committed contingency measures that Arizona adopted in the *Revised MAG 1999 Serious area Particulate Plan for* PM_{10} *for the Maricopa County Nonattainment Area* (1999/2000 MAG SIP or MAG SIP) (February 2000), and supports the 1999/2000 MAG SIP's contingency measure analysis that demonstrates attainment of the 24-hour and annual PM_{10} NAAQS by December 31, 2006. ADEQ commits to the adoption and implementation of specific contingency measures to take effect in the event the area fails to make reasonable further progress or attain the primary NAAQS by December 31, 2006.

Clean Air Act § 176(c)(1)(A)

Clean Air Act § 176(c)(1)(A), "Limitations on Certain Federal Assistance," provides that no agency of the federal government shall provide assistance for, license, permit, or approve, any activity that does not conform to an implementation plan after its approval or promulgation under CAA § 110. Conformity with the purpose of a state implementation plan requires uniformity with the plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS, and achieving expeditious attainment of the NAAQS.

Criteria for making determinations and provisions for general conformity as outlined in 40 CFR 93.153 can be located in A.A.C. R18-2-1438. There are no federal plans or actions adversely affecting PM_{10} concentrations currently in the Maricopa County PM_{10} Nonattainment Area, nor are any foreseen through year 2015.

Clean Air Act §§ 191 and 192

This SIP will be submitted in compliance with the deadlines specified in §§ 191 and 192.

Clean Air Act §§ 188(e), and 188(f)

Clean Air Act §188(e) provides that upon application by any state, the EPA Administrator may extend the attainment date for a serious PM_{10} area beyond the date specified under CAA §188(c), if attainment by the deadline specified in § 188(c) would be impracticable, the state has complied with all requirements and commitments pertaining to that area in the implementation plan, and the state demonstrates to the satisfaction of the Administrator that the plan for that area includes the most stringent measures that are included in the implementation plan of any state, or are achieved in practice in any state, and can feasibly be implemented in the area.

On July 25, 2002, EPA granted Arizona's request to extend the CAA PM_{10} serious area attainment deadline from December 31, 2001, to December 31, 2006 (67 FR 48718).

Clean Air Act §188(f) provides that the EPA Administrator may, on a case-by-case basis, waive any requirement applicable to any serious PM_{10} area, where the Administrator determines that anthropogenic sources of PM_{10} do not contribute significantly to the violation of the PM_{10} standard in the area. The Administrator may also waive a specific date for attainment of the standard where the Administrator determines that nonanthropogenic sources of PM_{10} contribute significantly to the violation of the PM_{10} standard in the area.

Chapters 3, 4, and 5 of this SIP, and the TSD emissions inventory and modeling demonstrate that for a large part of the Salt River PM_{10} Study Area, the predominant sources of PM_{10} are anthropogenic, even on high-wind days. Due to the absence of nonanathropogenic source contributions in the Salt River Study Area, Arizona does not currently believe that basis for a CAA §188(f) waiver request exists.

Clean Air Act §§ 189(b)(1)(A) and 189(b)(1)(B)

Clean Air Act §189(b)(1)(A) and (B) set forth state implementation plan provisions for serious PM_{10} nonattainment areas, requiring that the plan provides for attainment of the PM_{10} NAAQS by the applicable attainment date, or that an extension is granted (see CAA §188(e), above).

Clean Air Act §189(b)(1)(B) requires that plan provisions for serious PM_{10} nonattainment areas will assure that the Best Available Control Measures (BACM) for the control of PM_{10} be implemented no later than four years after the date the area is classified (or reclassified) as a serious PM_{10} area.

Arizona demonstrates, in SIP Chapter 4, and in the TSD, that Arizona has complied with the CAA requirement to implement BACM in the Maricopa County PM_{10} Nonattainment Area, and submits a BACM/MSM analysis that identifies candidate measures for potential implementation. Arizona commits to implementing BACM/MSM measures that are feasible and cost-effective for implementation in the Nonattainment Area and will provide sufficient emissions reductions to promote PM_{10} attainment as soon as practicable, but not later than December 31, 2006.

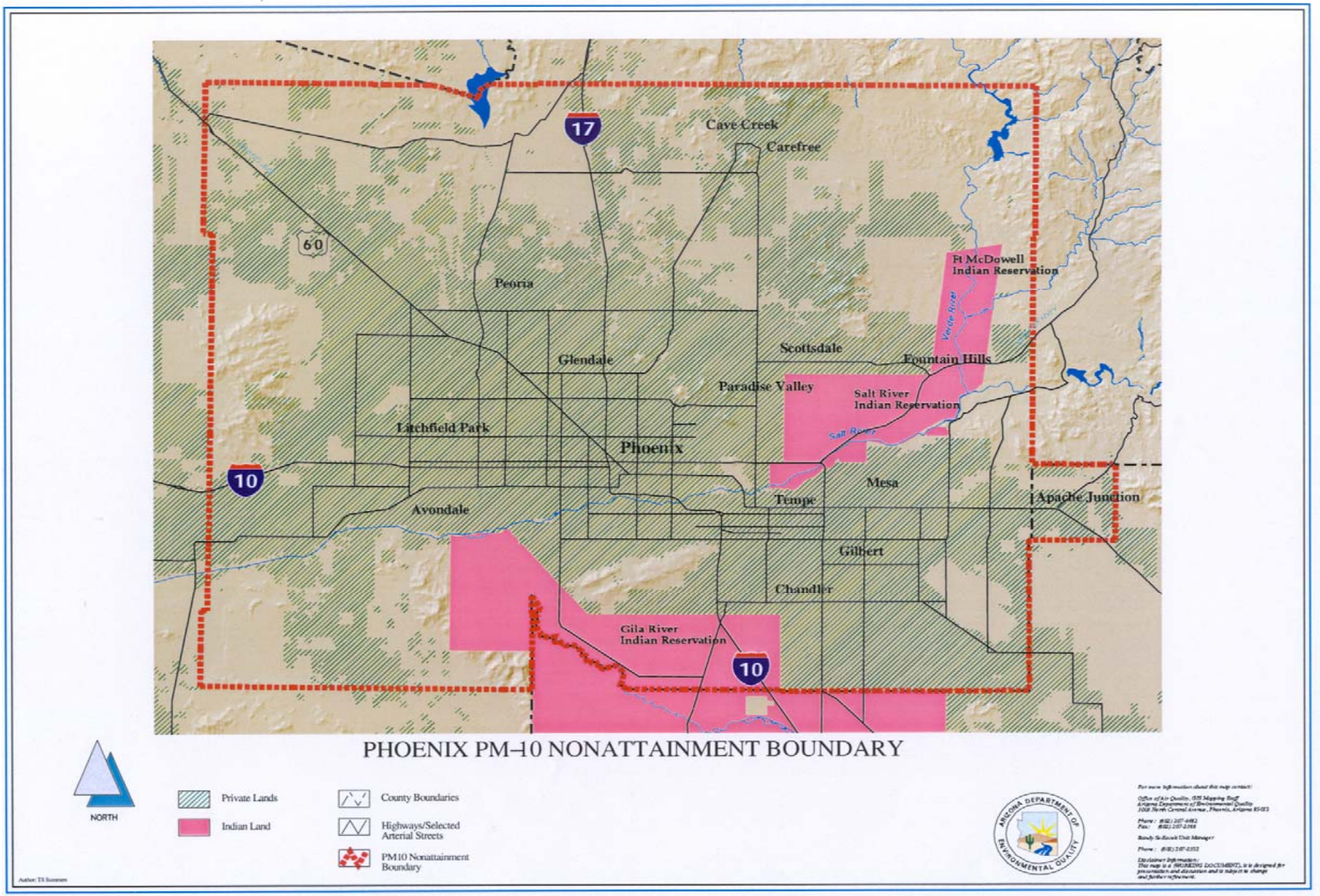

Figure 1.2.3-A – The Maricopa County PM_{10} Nonattainment Area

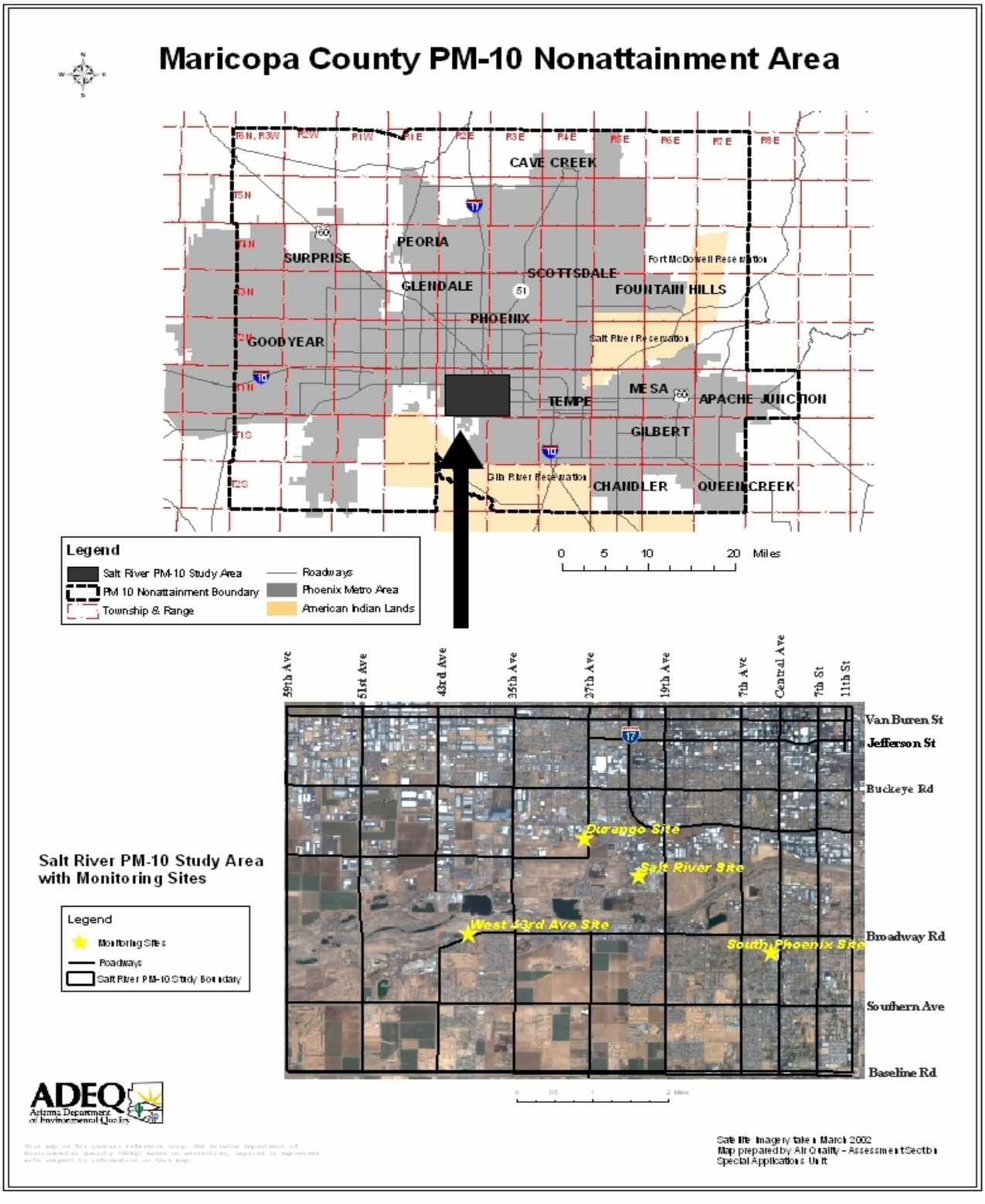

Figure 1.2.3-B – The Salt River PM_{10} Study Area

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CHAPTER 2: AIR QUALITY MONITORING FOR PARTICULATE MATTER

2.1 INTRODUCTION

Section 110(a)(2)(C) of the 1990 CAA requires ambient air quality monitoring for the purposes of state implementation plan development. These requirements also address criteria for reporting air quality monitoring data to EPA. The purpose of this chapter is to present a general description of the Maricopa County PM_{10} Nonattainment Area monitoring network, and of the monitoring network in the Salt River Study Area. This chapter details the historical PM_{10} air quality data for the Salt River Study Area for years 1994 through 2002. Although EPA had approved the attainment and RFP demonstrations for the Salt River, Maryvale, Gilbert, and West Chandler air quality monitoring sites in ADEQ's microscale plan, *Plan for Attainment of the 24-Hour PM_{10} Standard – Maricopa County PM_{10} Nonattainment Area*, submitted May 9, 1997 (62 FR 41856, August 4, 1997), the Salt River monitoring site continued to measure violations of the 24-hour PM_{10} standard, after the May 1998 attainment deadline. As a result of the continued violations, EPA issued a SIP call, requiring Arizona to submit a SIP revision to plan for attainment of the 24-hour PM_{10} NAAQS in Maricopa County, and Salt River Study Areas (67 FR 44369, July 2, 2002).

2.1.1 PM_{10} AIR QUALITY MONITORING NETWORK

The monitoring stations in the Maricopa County portion of the PM_{10} Nonattainment Area were operated by: the Maricopa County Environmental Services Department, and the Arizona Department of Environmental Quality. In the Maricopa County Nonattainment Area, as at other Arizona monitoring sites, suspended particulate matter (PM_{10} and $PM_{2.5}$), is usually sampled for 24 hours, from midnight to midnight, most often every-sixth-day. Ambient air is drawn through an inlet of a specified design, at a known flow rate, using a calibrated timer, onto a filter which collects all PM less than a diameter specified by the inlet design. PM_{10}, and $PM_{2.5}$ samples are processed in the same manner: those filters are weighed before and after the sample period to determine the difference in mass, and then integrated with flow rate and timer data to arrive at a mass per unit volume concentration. These data are then summarized into the appropriate quarterly or annual averages.

Common particulates instruments include the high-volume sampler (Hi-vol) and the dichotomous sampler (dichot). The dichotomous sampler measures both fine and coarse particulates. Particulates are also monitored continuously with a tapered element oscillating microbalance (TEOM) instrument.

2.1.2 DESCRIPTION OF SALT RIVER STUDY AREA MONITORS

Four PM_{10} air quality monitoring sites have operated in the Salt River Study Area since 1994. (See Appendix A for historical PM_{10} monitoring data.)

The Salt River Site

ADEQ and MCESD began operating the Salt River monitoring site on January 14, 1994. The Salt River monitoring site, a Special Purpose Monitor (SPM), was located at 3045 South 22nd Avenue, in a City of Phoenix vehicle maintenance yard, in an industrial area. The site had one, high-volume PM_{10} sampler that ran every sixth-day. The objectives of measurement at the site were to measure maximum concentrations, and determine the impact of significant sources or source categories.

The site was relocated within the property in January 2002, and discontinued altogether at the end of 2002, due to substantial construction on and near the property. As a result of efforts by MCESD, EPA, and ADEQ to find a suitable replacement site with comparable PM_{10} concentrations and industrial emissions, a site was identified and established as the "West 43rd Avenue" site.

The West 43rd Avenue Site

MCESD began monitoring near West 43rd Avenue on April 1, 2002. The site is located at 3940 West Broadway Road (West 43rd Avenue and Broadway Road) in Phoenix, in a Maricopa County Department of Transportation storage lot. The monitoring objective of the site is to measure the maximum concentration of PM_{10} and to determine the impact on ambient pollution levels of significant sources or source categories. The site has one, six-day SS high-volume particulate monitor. The site is surrounded by a combination of heavy industry, residential areas, and the river bottom. The industrial sources around the site include sand and gravel operations, auto and metal recycling, landfills, paved and unpaved haul roads, and cement casting.

2.1.3 THE DURANGO COMPLEX SITE

The Durango Complex site, which began operating in the Salt River Study Area in 1999, is located at 2702 AC Esterbrook Boulevard, in the Maricopa County Flood Control District storage yard, near agriculture, the highway department, and the river bottom. MCESD operates the State and Local Air Monitoring Station (SLAMS) site, which measures particulates, wind speed, and wind direction. The objective of use of the Durango site is measurement of maximum concentrations.

The South Phoenix Site

MCESD has operated the National Air Monitoring Station (NAMS) and SLAMS at the South Phoenix site since at least 1994. The site is located at 33 West Tamarisk, at Central and Broadway Roads, in a Phoenix residential area. The site borders commercial land use comprised of retail stores, food establishments, and office parks. The station represents two high population areas, north and west of the site. The criteria pollutants monitored at this station are carbon monoxide, ozone, and PM_{10}.

2.1.4 MARICOPA COUNTY HISTORICAL PM_{10} AIR QUALITY DATA (1994 TO 2002)

The PM_{10} concentrations presented in Appendix A show the historical data for all Maricopa County sites for the 24-hour PM_{10} standard, from 1994 through 2002. The numbers represented in bold type indicate exceedances of the 24-hour PM_{10} NAAQS.

CHAPTER 3: PM_{10} EMISSIONS INVENTORIES

3.1 INTRODUCTION

This chapter provides an overview of the methodology, assumptions and data for the Salt River Study Area PM_{10} emissions inventory, specific data regarding which are found in the accompanying *Salt River PM_{10} State Implementation Plan Technical Support Document* (TSD). The boundaries of the modeling domain are Van Buren Street on the north, Baseline Road on the south, 59th Avenue on the west and 10th Street on the east, - approximately 32 square miles. See TSD Appendix A for a satellite image of the study area with the locations of the four air quality monitors and depiction of the modeling grid (Map A-1). The base year emissions inventory captures 2002 PM_{10} emissions, and the future year emissions inventory projects 2006 emissions.

Chapter 4 of the TSD also provides calculations reflecting gridded hourly emissions for four design days: January 8, 2002; April 15, 2002; April 26, 2002; and December 16, 2002. The design days were selected based on two separate meteorological constructs, each of which reflects different arrays of emissions sources and different levels of source significance: two days represent high PM_{10} concentrations experienced during days affected by low wind conditions and a thermal inversion (January 8, and December 16, 2002); two days represent high PM_{10} concentrations experienced during days affected by periodic wind speeds over 15 miles per hour (April 15, and April 16, 2002). Following are the four major PM_{10} source categories developed for the purposes of this SIP:

- Point Sources – The point source category includes major stationary sources, defined as all facilities emitting greater than five tons per year (TPY) PM_{10}. Point source emissions include emissions from combustion, process operations, material transfers, storage pile wind erosion, and paved and unpaved roads within facility grounds.

- Area Sources – The area source category includes smaller anthropogenic stationary sources that are not included in the point source inventory, for example: small industrial facilities; agricultural tillage and harvesting; construction activity; and wind erosion of areas with disturbed topsoil, and considers PM_{10} emissions from non-point, non-anthropogenic sources.

- On-Road Mobile Sources – The on-road mobile source category includes vehicles certified for highway use: cars, trucks, and motorcycles. Re-entrained road dust from paved and dust from unpaved roads are also considered.

- Off-Road Mobile Sources – The off-road mobile source category includes a wide variety of gasoline and diesel equipment that either move under their own power or can be moved from site to site, consisting of equipment not licensed or certified as highway vehicles and which will move or be moved at least once during a 12-month period. Off-road mobile sources include equipment used in agriculture; construction; mining; commercial and industrial operations; lawn and garden maintenance; aircraft; airport ground support; locomotives; railroad; recreational equipment; and water craft.

3.1.1 SALT RIVER STUDY BASE YEAR PM_{10} EMISSIONS INVENTORY (2002)

Technical Support Document Chapter 4, section 4.2, "Overview of Methodology," presents an overview of the development of the base year emissions inventory for the Salt River SIP. The base year emissions inventory was developed as the result of an extensive field study, conducted

between June 1, and December 31, 2002. The study focused on identifying the locations of activities in the Salt River Study Area that generate fugitive dust. Satellite image analysis and observation of the Salt River Study Area resulted in the identification of the following general categories of PM_{10} emissions sources, which were subsequently input into ADEQ's GRIDTEST emissions model for the development of source hourly emissions, by grid:

Agricultural land;
Alluvial channels;
Construction areas;
Miscellaneous disturbed, or open, areas;
Paved primary roads
Paved parking lots;
Paved secondary roads;
Unpaved roads;
Unpaved road shoulders;
Unpaved parking lots;
Surface mining;
Vacant lots.

TSD Chapter 4, section 4.2.1, "Satellite Image Analysis," provides a summary of the process by which the gridded hourly emissions data were developed. A satellite image of the Salt River Study Area with an overlay of the above land uses is found in Appendix A of the TSD (Map A-2). ADEQ's emissions inventory for the Salt River Study Area was developed from this data.

Between June 1 and December 31, 2002, ADEQ and Maricopa County Environmental Services Department staff collected additional observational data on fugitive dust in the Salt River Study Area. Chapter 4, section 4.2.2, "Fugitive Dust Study," of the TSD describes the process by which ADEQ conducted observations of the locations and activities, within the Salt River Study Area, associated with noted occurrences of fugitive dust. Although these observations did not constitute a comprehensive survey of land use in the Study Area, they provided a method of documenting area incidents of fugitive dust. These observations were superimposed on a satellite map of the Salt River Study Area, reviewed by teams of ADEQ observers, and grouped them into the following 12 emissions categories, for further analysis:

Agriculture, including all general agricultural activities;
Earthmoving, including general activities associated with construction;
Trackout, including soil or bulk material on a paved street surface;
Material handling, including vehicle traffic on dirt or gravel roads at construction, industrial, or commercial sites;
Diesel exhaust, including exhaust from internal combustion engines that use diesel as fuel;
Wind event, including airborne dust due to wind movement;
Unpaved hauling, including vehicle traffic on dirt or gravel roads at construction at industrial or commercial sites;
Process equipment, including mechanical equipment used to produce a product or perform a specific function that produces airborne dust;
Unpaved parking, including vehicle traffic on unpaved parking areas;
Burning, including open burning;
Street work, including activities associated with street maintenance; and
Other, which was a general category used to describe airborne dust not attributable to a specific fugitive dust source or sources.

Appendix A of the TSD (Map A-3) depicts the locations and types of fugitive dust-producing activities that were observed during the Salt River study. Figure 4-1 of the TSD contains a pie graph showing the relative contributions of the types of fugitive dust sources observed during the Fugitive Dust Study. Figures 4-2, 4-3, and 4-4 show: contributions attributed to vehicle material transport at construction and industrial sites; contributions attributed to trackout at construction, industrial, and private sources; and contributions attributed to unpaved hauling observations at industrial and construction sources, respectively. Documentation appears on Page 6-16 and in Appendix P entitled "Mapping Weighted Trackout Emissions Into Predicted Concentrations" of the October 2004 TSD.

Chapter 4, section 4.3 of the TSD, "Development of 24-Hour Emissions Inventory," describes the development of ADEQ's 24-hour emissions inventory, and TSD Chapter 4, section 4.4, "Summary of 2002 PM_{10} Emissions Inventory," ranks the 2002 inventory sources by relative significance in the Salt River Study Area for the four design days. Figures 4-6, 4-7, 4-8, and 4-9 depict the Salt River Study Area PM_{10} source categories by percentage contribution. Table 4-5 of the Technical Support Document (below, Table 3.2), identifies the 2002 Salt River PM_{10} emissions inventory source categories and 2002 estimated PM_{10} emissions for each. Documentation of windblown emissions from unpaved shoulders appears on page 4-17 of the October 2004 TSD. Documentation of trackout from unpaved road shoulders is included on Pages 6-16 through 6-18 of the October 2004 TSD. Miles of paved shoulders are reported in the 2004 Milestone Reports in SIP Appendix E.

TABLE 3.2 – Salt River PM_{10} Emissions Inventory – Year 2002 (Metric Tons per Day)

	1/8/02	4/15/02	4/26/02	12/16/02
	Low Wind	**High Wind**	**High Wind**	**Low Wind**
	Tuesday	**Monday**	**Friday**	**Monday**
1. AREA SOURCES	**0.11**	**114.34**	**114.34**	
Ag Tilling (Land Preparation)	0.11			
Wind Erosion – Agricultural		46.76	46.76	
Wind Erosion – Construction		18.76	18.76	
Wind Erosion - Cleared Areas		39.01	39.01	
• Vacant lots		21.27	21.27	
• Miscellaneous disturbed areas		17.74	17.74	
Wind Erosion - Alluvial Channels		9.81	9.81	
2. INDUSTRIAL SOURCES	**0.75**	**48.61**	**56.05**	**0.75**
MCESD Permitted Sources – Windblown Stockpiles		4.94	12.38	
MCESD Permitted Sources – Windblown Cleared Areas		42.92	42.92	
MCESD Permitted Sources - Stacks	0.27	0.27	0.27	0.27
MCESD Permitted Sources – Process	0.45	0.45	0.45	0.45
MCESD Permitted Sources – Small	0.03	0.03	0.03	0.03
3. NONROAD MOBILE SOURCES	**0.85**	**0.84**	**0.84**	**0.84**
Agricultural Equipment Exhaust	0.005			
Construction Activity	0.84	0.84	0.84	0.84
4. ONROAD MOBILE SOURCES	**4.33**	**4.33**	**4.33**	**4.33**

TABLE 3.2 – Salt River PM_{10} Emissions Inventory – Year 2002 (Metric Tons per Day)				
	1/8/02	**4/15/02**	**4/26/02**	**12/16/02**
	Low Wind	**High Wind**	**High Wind**	**Low Wind**
	Tuesday	**Monday**	**Friday**	**Monday**
Paved Road				
Freeway – (subtotal) Brakes, Tires, Exhaust, Reentrainment	0.06	0.06	0.06	0.06
Primary Roads				
• Reentrained road dust	2.95	2.95	2.95	2.95
• Exhaust	0.09	0.09	0.09	0.09
• Brakes	0.02	0.02	0.02	0.02
• Tires	0.01	0.01	0.01	0.01
Primary Roads Emissions Subtotal		***3.07***	***3.07***	***3.07***
Secondary roads				
• Reentrained road dust	0.59	0.59	0.59	0.59
• Exhaust	0.02	0.02	0.02	0.02
• Brakes	0.004	0.004	0.004	0.004
• Tires	0.003	0.003	0.003	0.003
Secondary Roads Emissions Subtotal	***0.62***	***0.62***	***0.62***	***0.62***
Paved Road Total Emissions	**3.69**	**3.69**	**3.69**	**3.69**
5. Trackout	**0.66**	**0.66**	**0.66**	**0.66**
6. Unpaved Shoulders & Parking Lots	**0.133**	**0.133**	**0.133**	**0.133**
Unpaved Road Shoulders	0.13	0.13	0.13	0.13
Unpaved Parking Lots - Reentrained dust	0.003	0.003	0.003	0.003
PM_{10} EMISSIONS - GRAND TOTAL	***6.25***	***168.43***	***175.87***	***6.14***

3.2 SALT RIVER STUDY FUTURE YEAR PM_{10} EMISSIONS PROJECTIONS (2006)

The following emissions source categories in the Salt River PM_{10} Study Area are projected to show a change in emissions between Year 2002 and Year 2006:

Agricultural Tillage. The amount of agricultural land, and emissions from agricultural tillage, are projected to decrease 80% due to conversion of agricultural land to residential and commercial uses. Documentation appears in Appendix Q entitled “Projected Construction Activity” and on pages F-11 and F-13 of Appendix F entitled “Agricultural Tillage and Harvest” of the October 2004 TSD.

Construction Activity. MCESD estimated the overall control effectiveness for the control measures for construction activity for year 2002 to be 56 percent based on a 90-percent control efficiency, an 80-percent compliance rate, and an adjustment to reflect future test method improvements. Emissions from construction activity are projected to decrease in coming years, to increase the rule effectiveness for this category from 56 percent to 72 percent.

Roads (Freeway, Primary, and Secondary). Traffic is projected to increase by six percent between 2002 and 2006, based on the growth in traffic volumes in the Salt River Study Area, which occurred between 1998 and 2002. Since there are no plans for road-building projects in the Salt River PM10 Study Area, this estimate of VMT growth, 1.5 percent per year, based on a

MAG analysis of City of Phoenix traffic counts, is consistent with the central location and older neighborhoods characteristic of the study area.

Unpaved Parking Lots. Emissions from unpaved parking lots greater than 0.10 acres are projected to decrease due to MCESD strengthening Rule 310,0 which increases the rule effectiveness for this category from 55% to 71%.

Unpaved Road Shoulders. Unpaved road shoulders in the study area have decreased by 10 percent since 2002, due to completion of road shoulder stabilization projects. Thus, the amount of emissions from road shoulders has also decreased by 10 percent.

Wind Erosion – Agricultural. The amount of agricultural land, and emissions from wind erosion of agricultural land, are projected to decrease 80% due to conversion of agricultural land to residential and commercial uses (Maricopa County Farm Bureau, 2003 and ADEQ analysis).

Wind Erosion – Construction. Emissions from wind erosion of disturbed areas due to construction are projected to attain 70 percent by 2006.

Wind Erosion – Vacant Lots and Miscellaneous Disturbed Areas. The amount of vacant lots are projected to decrease by 39% and miscellaneous disturbed areas are projected to decrease 13.6% due to conversion of vacant lots and miscellaneous disturbed areas to residential and commercial uses. ADEQ estimated the decrease in vacant lots and miscellaneous disturbed areas would parallel the conversion of agricultural land to residential and commercial uses (URS and ERG, 2001). In addition, MCESD strengthened Rule 310 to increase the rule effectiveness for this category from 55% to 71%.

Table 3.3(below) and Table 4-7 of the TSD reflect the 2006 base case projected emissions for each of the design days:

TABLE 3.3 – Salt River PM10 Emission Inventory – Base Case 2006 (Metric Tons/Day)

	1/8/06* Low Wind Tuesday*	4/15/06* High Wind Monday*	4/26/06* High Wind Friday*	12/16/06* Low Wind Monday*
1. AREA SOURCES	**0.02**	**50.34**	**50.34**	
Ag Tilling (Land Preparation)	0.02			
Wind Erosion – Agricultural		9.35	9.35	
Wind Erosion – Construction		15.20	15.20	
Wind Erosion – Cleared Areas		21.57	21.57	
Vacant lots		11.76	11.76	
Miscellaneous disturbed areas		9.81	9.81	
Wind Erosion – Alluvial Channels		4.22	4.22	
2. INDUSTRIAL SOURCES	**0.75**	**48.61**	**56.05**	**0.75**
MCESD Permitted Sources – Windblown Stockpiles		4.94	12.38	
MCESD Permitted Sources – Windblown Cleared Areas		42.92	42.92	
MCESD Permitted Sources - Stacks	0.27	0.27	0.27	0.27

TABLE 3.3 – Salt River PM10 Emission Inventory – Base Case 2006 (Metric Tons/Day)				
	1/8/06*	**4/15/06***	**4/26/06***	**12/16/06***
	Low Wind	**High Wind**	**High Wind**	**Low Wind**
	Tuesday*	**Monday***	**Friday***	**Monday***
MCESD Permitted Sources – Process	0.45	0.45	0.45	0.45
MCESD Permitted Sources – Small	0.03	0.03	0.03	0.03
3. NONROAD MOBILE SOURCES	**0.54**	**0.54**	**0.54**	**0.54**
Agricultural Equipment Exhaust	0.004			
Construction Activity	0.54	0.54	0.54	0.54
4. ONROAD MOBILE SOURCES	**4.19**	**4.19**	**4.19**	**4.19**
Paved Road				
Freeway – Brakes, Tires, Exhaust, Reentrainment	0.07	0.07	0.07	0.07
Primary Roads				
Reentrained road dust	3.19	3.19	3.19	3.19
Exhaust	0.10	0.10	0.10	0.10
Brakes	0.02	0.02	0.02	0.02
Tires	0.01	0.01	0.01	0.01
Primary roads subtotal	3.32	3.32	3.32	3.32
Secondary roads				
Reentrained road dust	0.64	0.64	0.64	0.64
Exhaust	0.02	0.02	0.02	0.02
Brakes	0.004	0.004	0.004	0.004
Tires	0.003	0.003	0.003	0.003
Secondary Roads Subtotal	0.67	0.67	0.67	0.67
Paved Road Total Emissions	**4.06**	**4.06**	**4.06**	**4.06**
5. Trackout	**0.66**	**0.66**	**0.66**	**0.66**
6. Unpaved Shoulders & Parking Lots	**0.133**	**0.133**	**0.133**	**0.133**
Unpaved Road Shoulders	0.13	0.13	0.13	0.13
Unpaved Parking Lots - Reentrained dust	0.003	0.003	0.003	0.003
PM10 EMISSIONS - GRAND TOTAL	**6.16**	**104.47**	**111.91**	**6.14**
* Theoretical design days in year 2006 that have identical meteorological conditions, time of year, and day of week to the four design days in year 2002 emissions inventory and modeling.				

As discussed earlier in this chapter, source categories and their relative significance in the emissions inventory of the Salt River Study Area varied with changes in meteorology: design days with low wind speeds featured a different combination of emission sources than were reflected for the design days with high wind speeds. The design days with high wind speeds had additional emission sources related to wind erosion of disturbed soil, especially with respect to the wind erosion of agricultural and alluvial channel areas. Section 4.5, Table 4-7 shows 2006 uncontrolled emission estimates and Section 6.4.2, Table 6-12 shows 2006 controlled emissions estimates. The City of Phoenix Progress Report on implemented alluvial channel control measures is in SIP Appendix E.

The most significant source categories projected for 2006 for low and high wind days are given in Table 3.4, below.

TABLE 3.4 – Base Case 2006 Salt River PM Emissions Inventory - Significant Sources for Low Wind and High Wind Days			
LOW WIND DAYS		**HIGH WIND DAYS**	
Primary Paved Roads	60.57%	Wind Erosion – Industrial	39.79%
Industrial Sources	13.62%	Wind Erosion – Cleared Areas	29.57%
Secondary Paved Roads	12.22%	Wind Erosion – Construction	20.83%
Trackout	10.73%	Wind Erosion – Agricultural	16.02%
Construction Activity	9.85%	Wind Erosion – Stockpiles	7.91%
Unpaved Road Shoulders	2.09%	On-Road Mobile	4.43%
		Wind Erosion – Alluvial Channels	26.06%

See Appendix N “Wind Roses” of October 2004 TSD.

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CHAPTER 4: OVERVIEW OF PM_{10} CONTROL MEASURES

4.1 INTRODUCTION

Chapter 1.2.2 of this SIP ("Regulatory History of the Metropolitan Maricopa PM_{10} Nonattainment Area") notes that on July 25, 2002, EPA approved the Maricopa Serious PM_{10} Nonattainment Area, and granted Arizona's request, in accordance with CAA § 188(e), to extend the CAA deadline for attainment of the annual and 24-hour PM_{10} standards from December 31, 2001, to December 31, 2006 (67 FR 48718).

Because the attainment deadline for this plan revision is also December 31, 2006, and the measures must be applied to all similar sources throughout the Phoenix Nonattainment Area (see 67 FR 44369, July 2, 2002), the control strategies must meet the "Most Stringent Measures" test, as well as the “Best Available Control Measures/Technology” test. In its July 25, 2002, approval of the Maricopa County Plan, EPA defined “most stringent measures” (MSMs) as the most stringent measures included in any state implementation plan, or being implemented in any state, that are economically and technologically feasible for the nonattainment area in question. “Best Available Control Measures” (BACM) must be applied in serious nonattainment areas, also taking into account the economic and technological feasibility of each measure.

This chapter details the proposed BACM and MSM that were evaluated for each significant source category.

4.2 SOURCE CATEGORIES

The Salt River Study Area 2002 base year emissions inventory is described in Chapter 3.0 and the TSD’s Chapter 4.0. The 2002 emissions source category contributions to ambient PM_{10} are depicted in Table 4.2.1. The average concentrations are derived from the modeled concentrations outlined in the TSD, Chapter 6.

Assumptions used to calculate trackout emissions appear in Appendix K “Methodology for Weighting Trackout Emissions” and Appendix P “Mapping Weighted Trackout Emissions into Predicted Concentrations” of the October 2004 TSD. Calculation methodology for street sweeping emissions reductions appears in Appendix L “Street Sweeping Reductions” of the October 2004 TSD.

Table 4.2.1 2002 Salt River Study Area Source Category Contributions to Ambient PM_{10} Concentrations

Source Category	Average Low Wind Day Contribution	Average High Wind Day Contribution	Highest Contribution($\mu g/m^3$)	
	Percentage Contribution	Percentage Contribution	Low Wind Day	High Wind Day
Industrial Sources	**25.9%**	**8.3%**	**60.2**	**31.8**
Point Emissions	2.7%	1.1%	5.3	3.0
Area Emissions	23.2%	7.2%	54.9	28.8
Construction	**5.8%**	**0.9%**	**6.0**	**4.4**
Area Sources	**4.2%**	**0.7%**	**8.0**	**3.1**
Unpaved Parking Lots	1.7%	0.2%	0.8	1.4
Unpaved Shoulders	2.5%	0.4%	7.2	1.7

Table 4.2.1 2002 Salt River Study Area Source Category Contributions to Ambient PM_{10} Concentrations				
Source Category	**Average Low Wind Day Contribution**	**Average High Wind Day Contribution**	**Highest Contribution($\mu g/m^3$)**	
	Percentage Contribution	**Percentage Contribution**	**Low Wind Day**	**High Wind Day**
Roads & Trackout	**63.7%**	**13.5%**	**73.6**	**42.7**
Freeway	0.4%	0.2%	0.7	0.4
Primary Roads	43.6%	9.3%	44.8	33.3
Secondary Roads	7.5%	1.5%	6.9	1.5
Trackout	12.1%	2.5%	21.2	7.5
Agricultural Tillage	**0.4%**	**NA**	**0.2**	**NA**
Windblown Dust	**NA**	**76.7%**	**NA**	**290.1**
Agricultural Fields	NA	21.3%	NA	**84.9**
Alluvial Channels	NA	14.9%	NA	**79.5**
Construction	NA	3.5%	NA	**14.0**
Industrial	NA	7.3%	NA	**33.6**
Disturbed Areas	NA	5.2%	NA	**25.9**
Stockpiles	NA	3.6%	NA	**12.6**
Vacant Lots	NA	20.9%	NA	**39.6**

Note: Bold concentrations exceed the 5 $\mu g/m^3$ threshold for significant sources.

In Table 4.2.2, the modeled contributions for each of the source categories are given for the 2006 attainment case. These percentages are similar to the 2002 case, but with several significant differences. For example, the windblown contribution decreases from 77% to 59% from 2002 to 2006.

Table 4.2.2 Salt River Study Area Source Category Contributions to Ambient PM_{10} Concentrations for the 2006 Attainment Case		
Source Category	**Average Low Wind Day Contribution**	**Average High Wind Day Contribution**
	Percentage Contribution	**Percentage Contribution**
Industrial Sources	**29.7%**	**12.1%**
Point Source Emissions	4.4%	3.1%
Area Emissions	25.2%	8.9%
Construction	**5.2%**	**1.8%**
Area Sources	**7.1%**	**2.1%**
Unpaved Parking Lots	0.5%	0.6%
Unpaved Shoulders	6.6%	1.5%
Roads & Trackout	**58.0%**	**24.7%**
Freeway	0.9%	0.4%
Primary Roads	48.3%	21.6%
Secondary Roads	6.8%	1.9%
Trackout	2.0%	0.7%
Agricultural Tillage	**0.1%**	**NA**
Windblown Dust	**NA**	**59.4%**
Agricultural Fields	NA	8.9%
Alluvial Channels	NA	15.4%
Construction	NA	4.2%
Industrial	NA	6.7%
Disturbed Areas	NA	10.1%
Stockpiles	NA	5.9%
Vacant Lots	NA	8.4%

4.3 BACM AND MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

4.3.1 BACM AND MSM ANALYSIS

EPA provided guidance regarding the requirements of CAA § 188(e) in its July 25, 2002, approval of the *Revised MAG 1999 Serious Area Particulate Plan for* PM_{10} *for the Maricopa County Nonattainment Area* (67 FR 48718), and in its more recent proposed approval of the *Clark County* PM_{10} *Implementation Plan* (68 FR 2954, January 22, 2003). For the 24-hour standard, BACM must be applied to source categories contributing at least 5 $\mu g/m^3$, the same threshold used for the New Source Review program. In its approval of the Phoenix plan, EPA commented that states should focus on the controls most likely to result in real air quality benefits and not use limited resources on controls with trivial impacts (see page 67 FR 48721). The threshold for which sources MSM must be applied is the same (see page 67 FR 48722).

BACM and MSM are required for all sources that exceed the 5 $\mu g/m^3$ threshold level, however, the economic and technical feasibility of potential controls also must be considered. Because of varying factors, such as the mix of sources, including nonanthropogenic sources, population exposure, and availability of controls, the set of control measures must be individualized for the specific conditions in each nonattainment area.

Identifying potential BACM and MSM controls involves researching controls in other areas. The Arizona Department of Environmental Quality (ADEQ) and Maricopa County Environmental Services Department (MCESD) began with the analyses performed for the MAG and Clark County Plans, then researched and added additional PM_{10} controls proposed in other SIPs or being implemented by other jurisdictions. These include: Coachella Valley, California; South Coast Air Quality Management District (SCAQMD), California; Washoe County, Nevada; Mohave Desert Air Quality Management District (DAQAD), California; San Joaquin Valley (SJV) Unified Air Pollution Control District (APCD); California; Texas Commission on Environmental Quality (TCEQ); Florida Department of Environmental Protection; Bay Area Quality Management District, California; and Oklahoma Department of Environmental Quality.

4.3.2 SIGNIFICANT SOURCE CATEGORIES

The source categories exceeding the significance threshold of 5 $\mu g/m^3$ are:

Area Sources

Windblown emissions from construction, agriculture, open areas and vacant lots, and the Salt River alluvial channel;

Permitted Industrial Sources

Emissions from industrial point sources, industrial area sources, windblown cleared areas, and stockpiles; and

On-Road Mobile Sources

Emissions from paved roads including primary and secondary roads, trackout, and unpaved shoulders.

A detailed discussion of construction activity, although significant, has been left out of the following discussion. Its omission stems from EPA's finding that County Rule 310 already qualifies as BACM/MSM.

4.3.3 AREA SOURCE CONTROL MEASURES

Windblown Construction

Background

Emissions in this category originate from wind erosion of topsoil that has been disturbed by earthmoving activities related to construction.

Potential Control Measures

The potential control measure is better enforcement of MCESD Rule 310 pertaining to the control of fugitive dust. In 2003, the U.S. Environmental Protection Agency (US EPA) conditionally approved Rule 310 as BACM contingent upon the completion of 3 commitments by MCESD: 1) research and develop standards and test methods for earthmoving sources that are enforceable and meet BACM requirements on stringency and source coverage; 2) incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310; and 3) revise sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan.

MCESD met the first commitment by amending Appendix C of the MCESD Air Pollution Control Regulations which outlines test methods used for fugitive dust observations. MCESD established test methods for non-continuous and continuous plumes from dust generating operations. To meet the second commitment, MCESD revised dust control permit applications to more clearly request the information that is required in order to evaluate chosen control measures. MCESD met the final commitment by revising sample record keeping logs and making them widely available to regulated sources and the public. MCESD also clarified the recordkeeping requirements listed in Rule 310, Section 500, to reflect the changes to the sample forms. On April 7, 2004, the Maricopa County Board of Supervisors adopted the required enhancements to Rule 310.

The methods available under enhanced Rule 310 to control windblown dust emissions from disturbed areas include opacity restrictions, the use of water or dust suppressants, and the installation of wind barriers. Temporary measures to be implemented during weekends, after work hours, on holidays or high wind events include applying water, dust suppressants, or gravel, and restricting vehicular access.

Rule Compliance/Test Methods/Record Keeping

Rule Compliance, Test Methods, and Record Keeping can be found in MCESD Rule 310. A critical aspect of strengthening enforcement of the Rule 310 control measures listed above is the hiring of additional inspectors for the program (this includes resources for the enforcement of Rules 310.01 for open areas and vacant lots and Rule 316 pertaining to industrial sources). In 1998, MCESD had four inspectors, one supervisor, and one enforcement officer on staff to enforce 1,700 earthmoving permits. In 2000, MCESD increased the number of personnel working on Rule 310 ("Fugitive Dust") compliance to eight inspectors, one supervisor, one coordinator, two enforcement officers, one aide, and one County attorney. In 2000, MCESD was responsible for 2,500 earthmoving permits.

Currently, MCESD is responsible for 4,150 earthmoving permits. Appendix B contains a copy of MCESD Rule 310, 310.01, 316, and 325 as adopted by the Maricopa Board of Supervisors.

The Maricopa County Air Quality (MCAQ) Department (*formerly MCESD*) has completed the work load analyses, entitled "*Workload Analyses for Earth Moving and Vacant Lots Program*" which is included in Appendix F. The first analysis will focus on three to five inspections per year at earthmoving sites ten acres or larger in size and one inspection per year at smaller sites for compliance with Maricopa County Rule 310. The second analysis will focus on inspections of 5,300 vacant lots per year, which constitutes 20 percent of the 26,446 vacant lots identified as of October 2003, for compliance with Maricopa County Rule 310.01 ("Fugitive Dust from Open Area, Vacant Lots, Unpaved Parking Lots, and Unpaved Roadways"). Included in Appendix F is a copy of the Maricopa County's Air Quality's Inspection Prioritization Plan for Vacant Lots.

The third analysis will focus on increasing inspection for compliance with Maricopa County Rule 316 ("Non-Metallic Mineral Mining and Processing") to four times per year. The workload analysis will also address proposed enforcement for Maricopa County's proposed Rule 325, which will provide PM_{10} controls for structural clay and brick manufacturers.

These analyses are expected to result in identification of the number of additional personnel and salaries/fringe benefits totals necessary for an effective enforcement effort to attain the PM_{10} standard. Interim funding to enable accelerated hiring of some additional personnel was also explored and identified. A resolution committing Maricopa County to a funding mechanism and specified number of enforcement positions to be added and filled in 2004-2005 was presented to the Maricopa County Board of Supervisors for adoption and is included in Appendix D. Following adoption of the resolution, Maricopa County will hire additional personnel in the October 2004 through September 2005 timeframe. In the interim, Maricopa County will revise fees through revisions to Maricopa County Rule 280 to fund the additional positions. MCESD held an initial public workshop on fees and will bring this rule to the Maricopa County Board of Supervisors for adoption in the first half of 2005.

Windblown Cleared Areas (Open Areas, Vacant Lots, and the Alluvial Channel)

Background

Windblown dust from open areas and vacant lots can be a major source of PM_{10} emissions. As high winds pass over open areas and vacant lots, particulate emissions are generated by a process called the saltation effect, where large particles begin to roll and then bounce, knocking smaller particles into the wind stream. Windblown dust emissions from open areas and vacant lots can be produced for many hours at a time when the wind speed exceeds the wind erosion threshold speed of 15 mph.

A special case of windblown emissions from open areas and vacant lots is emissions from disturbed soils in the Salt River alluvial channel. The alluvial channel is mostly dry and contains loose soil due to disturbance from wind erosion and vehicular trespass.

Potential Control Measures

The potential control method is better enforcement of MCESD Rule 310.01 pertaining to fugitive dust control on open areas and vacant lots. Rule 310.01 control measures for reducing windblown particulate matter emissions from open areas, vacant lots, and the alluvial channel can be grouped into three categories: soil stabilization, barriers to trespassing, and wind breaks.

Soil stabilization methods include establishing a vegetative ground cover on disturbed areas, restoring disturbed surface areas such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby native conditions, applying a dust suppressant to disturbed surface areas, and uniformly applying and maintaining surface gravel, river rock, or broken concrete debris on disturbed surface areas.

Barriers to trespassing prevent vehicles from having access to open areas and vacant lots. These include concrete and rock barriers, fences, ditches, berms, and posting no trespassing signs. Barriers and signage are necessary for law enforcement to respond to trespassing complaints.

Wind breaks reduce surface wind speeds to below the reentrainment emission threshold of 15 miles per hour. These include chain link fences with inserts, walls, and planting of trees and shrubs. Wind breaks are not currently a control method option in MCESD Rule 310.01 and would require a revision of Rule 310.01.

Emission Reductions

For the Year 2002, PM_{10} emissions from open areas and vacant lots in the Salt River PM_{10} Study Area were estimated to be 17.7 metric tons/day for open areas and 21.3 metric tons/day for vacant lots. This daily emission rate is based on PM_{10} emissions due to wind erosion on high wind days and a control measure efficiency of 55 percent for MCESD's Rule 310.01.

For the Year 2006, PM_{10} emissions from open areas and vacant lots in the Salt River PM_{10} Study Area were estimated to be 9.8 metric tons/day for open areas and 11.8 metric tons/day for vacant lots. The daily emission rates are based on PM_{10} emissions due to wind erosion on high wind days and an increased control measure efficiency from 55 percent to 71 percent for MCESD's Rule 310.01. The projected reduction in PM_{10} emissions results from not only the better enforcement of Rule 310.01 but also from the conversion of open areas and vacant lots to residential and commercial uses. Converted land has lower windblown PM_{10} emissions due to stabilization of the soil from landscaping, paving, and the buildings themselves.

Based on the MCESD Rule Effectiveness Study and the Clark County, Nevada PM_{10} SIP, Table 4.3.3.1 shows emission reduction percentages that could be achieved assuming that MCESD hires additional inspectors to strengthen the enforcement of MCESD's Rule 310.01 for open areas and vacant lots. The Maricopa County Resolution concerning strengthened enforcement and increased staffing is included at SIP Appendix D, along with the Inspection Strategy. This increased enforcement is expressed in the table as 80% Rule Effectiveness. The table also presents emission reductions from several different control measures that involve either stabilizing the surface or creating barriers to trespassing, or both.

In the heading of the table, the phrase "without any additional controls" means that quantity of emissions that would occur with the 2002 level of enforcement.

For the Year 2002, PM_{10} emissions from the alluvial channel were estimated to be 9.8 metric tons/day due to wind erosion on high wind days. This baseline estimate is based on the assumption that there was no enforcement of MCESD Rule 310.01 in that portion of the alluvial channel.

For the Year 2006, PM_{10} emissions from the alluvial channel were estimated to range from 2.8 to 7.5 metric tons/day depending upon the types of control measures that may be implemented.

Table 4.3.3.1 Open Areas and Vacant Lots Control Measures (Year 2006 PM10 emissions without additional controls equals 21.57 metric tons/day)				
Control measures	**Rule Effectiveness**	**Control Efficiency**	**Total Control Efficiency**	**Open Areas and Vacant Lots – PM10 Emissions After Controls** (*Metric tons/day*)
Establish a vegetative cover	80%	45%	36%	13.80
Restore to nearby native vegetation	80%	45%	36%	13.80
Apply dust suppressant	80%	40%	32%	14.67
Apply gravel	80%	75%	60%	8.63
Create barriers to trespassing	80%	30%	24%	16.39
Establish wind breaks	80%	40%	32%	14.67
Establish a vegetative cover with barriers to trespassing	80%	90%	72%	6.04
Restore to nearby native vegetation with barriers to trespassing	80%	90%	72%	6.04
Apply dust suppressant with barriers to trespassing	80%	80%	64%	7.77

Based on MCESD's Rule Effectiveness Study and the Clark County, Nevada PM_{10} SIP, the emissions reductions percentages shown in Table 4.3.3.2 can be achieved, when MCESD hires additional inspectors to strengthen enforcement of MCESD's Rule 310.01 for open areas and vacant lots. This table also shows emissions reductions from combining control measures with the Create Barriers to Trespassing control measure.

For the majority of the control measures above for open areas, vacant lots, and the alluvial channel to remain effective, vehicular trespassing must be minimized through the use of barriers to trespassing. Otherwise, vehicular traffic will destroy/disturb vegetative cover and the other surface treatments used to stabilize the soil, including the installation of wind breaks.

Rule Compliance/Test Methods/Record Keeping

Rule Compliance, Test Methods, and Record Keeping can be found in MCESD Rule 310.01. As described above for windblown construction emissions, a critical aspect of strengthening enforcement of the Rule 310 control measures is the hiring of additional inspectors for the entire program.

Technical Feasibility

Following is a discussion of the technical feasibility of various means of stabilizing ground surfaces, reducing soil erode ability and barring trespassing.

> ***Establishing a Vegetative Ground Cover.*** Establishing a vegetative ground cover is technically feasible. The choice of ground cover would be up to the individual property owner. The availability of water for establishing the ground cover, and possibly maintaining it, would be possible constraints. For the Salt River alluvial channel, water in the lakes located in some of the rock product facilities is a potential source of nearby water for establishing a vegetative cover. Transferring water from the lakes would require coverage under an AZPDES general permit.

Table 4.3.3.2 Alluvial Channel Control Measures (Uncontrolled Emissions – 9.81 Metric Tons/Day On High Wind Days)				
Control measures	**Rule Effectiveness**	**Control Efficiency**	**Total Control Efficiency**	**Open Areas and Vacant Lots – PM10 Emissions After Controls (Metric tons/day)**
Establish a vegetative cover	80%	45%	36%	6.28
Restore to nearby native vegetation	80%	45%	36%	6.28
Apply dust suppressant	80%	40%	32%	6.67
Apply gravel	80%	75%	60%	3.92
Apply river rock	80%	70%	56%	4.32
Apply broken concrete debris	80%	70%	56%	4.32
Establish wind breaks	80%	40%	32%	6.67
Create barriers to trespassing	80%	30%	24%	7.46
Establish a vegetative cover with barriers to trespassing	80%	90%	72%	2.75
Restore to nearby native vegetation with barriers to trespassing	80%	90%	72%	2.75
Apply dust suppressant with barriers to trespassing	80%	80%	64%	3.53
Establish wind breaks with barriers to trespassing	80%	80%	64%	3.53

Restoring to Similar Vegetative and Soil Conditions of Adjacent or Nearby Native Areas. This control measure is technically feasible. The choice of ground cover would be up to the individual property owner. The availability and cost of water for establishing the ground cover, and possibly maintaining it, would be constraints. As described above for the Salt River alluvial channel, water in the lakes located in some of the rock product facilities is a potential source of nearby water for establishing a vegetative cover. Transferring water from the lakes would require coverage under an AZPDES general permit.

Applying Dust Suppressant. Dust suppressants are readily available and would work to reduce wind erosion of open areas and vacant lots. A constraint on the use of dust suppressants in the alluvial channel is potential surface and ground water contamination. Dust suppressants can also possibly be washed away when water is released from dams upstream.

Applying Gravel. Gravel can be used to cover disturbed portions of open areas and vacant lots to prevent wind erosion. For the alluvial channel, gravel can be used to cover some, but not all areas because gravel may sink into those portions of the channel containing fine silt.

Applying River Rock. River rock can be used as a control measure for the Salt River alluvial channel. The rock can be mined from some areas of the channel and then spread on the most unstable soils in the channel. This control measure assumes that there is an adequate supply of river rock.

Applying Broken Concrete from Construction Debris. Broken concrete and asphaltic pavement can be used as control measures for the alluvial channel. Both are included in the A.R.S. § 49-201.19 definition of inert material.

Creating Barriers to Trespassing. Barriers to trespassing are effective, but need to be constructed correctly. If barriers do not completely limit access to open areas, vacant lots, and the alluvial channel trespassers will probably find a way around the barriers and disturb

the soil treatment used to stabilize the disturbed soil. A necessary deterrent to trespassing is the placement of "No Trespassing" signs. Law enforcement agencies require the presence of signs as a pre-condition to prosecuting trespassers. The combination of barriers and signage is effective in reducing trespassing if there is adequate patrolling and enforcement of the area by police officers.

Establishing Wind Breaks. The effectiveness of trees and bushes as wind breaks is dependent on the height, density and the orientation of the wind break to the prevailing winds. The same is true for the effectiveness of walls and modified chain link fences used as wind breaks. This measure would require a revision to Rule 310.01, since wind breaks are not listed as a control measure in this rule.

Economic Feasibility

Establishing a Vegetative Ground Cover. It is feasible to establish vegetative cover as a means of stabilizing soil and creating a boundary layer that will prevent wind erosion. Two general approaches can be taken: planned landscaping and establishment of "native" vegetation (may include exotic species that are well adapted to ambient temperature and precipitation). Ideally, one would be seeking a minimum of broadly spaced shrubs, (e.g. creosote bush, acacia, saltbush, and desert broom) mixed with forbs (e.g., fairy duster and rosemary), herbaceous groundcovers (e.g., sand verbena, four o' clocks and crane's bill) and grasses. Planned landscaping may require continued maintenance and permanent irrigation systems, unless xeroscaping techniques and plants are used. Drip irrigation systems cost about $1,500 per acre, with total costs in the range of $16,000 to $21,000 per acre. The least expensive option is reestablishing native vegetation, which requires no maintenance beyond the first year. The costs of this option are not known at this time. Regardless, xeroscaping and reestablishment of native vegetation requires irrigation for the first year to stabilize soils and allow plants to become established. All vegetative cover options require restricting access to be successful.

Restoring to Similar Vegetative and Soil Conditions of Adjacent or Nearby Native Areas. See above discussion regarding establishing vegetative ground cover. The least expensive option is reestablishing native vegetation, which requires no maintenance beyond the first year. The costs of this option are not known at this time. Regardless, xeroscaping and reestablishment of native vegetation requires irrigation for the first year to stabilize soils and allow plants to become established. All vegetative cover options require restricting access to be successful.

Applying Dust Suppressant. The effectiveness of applying a dust suppressant is directly related to the dilution rate, number of applications, frequency of application, and traffic. The cost range of $9,680 - $12,100 per acre is based on preparing the surface, applying two to four applications of the dust suppressant, and compacting the surface. If a customer prepares the surface, including pre-moistening of the surface and provides on-site water, the cost of a single application dust suppressant could be as little as $1,000 per acre.

Applying Gravel. Gravel, crushed river rock or crushed granite can be applied as a control measure for disturbed soils. One ton of 3/8-inch crushed river rock would cover 100 square feet, 2 inches deep. An acre would require about 435 tons of rock. The price range of $9,888 - $10,803 per acre includes a contractor spreading cost of $9.00 per ton. Actual costs vary depending on the size of the project and job conditions.

Applying River Rock. This control measure applies to the Salt River alluvial channel. River rock in the channel can be excavated, hauled short distances, and placed on unstable areas of the channel. Costs are estimated at approximately $4,000 per day for two excavators, two ten-wheeler trucks, and a water truck. This scenario assumes moving 100 cubic yards per hour of rock at a cost of $4.00 - $5.00 per cubic yard of rock moved. It is estimated that 800 cubic yards of river rock can be excavated and spread at a cost of $4,000 per day.

Creating Barriers to Trespassing. Three types of barriers to trespassing were considered: a concrete or highway barrier, a chain link fence with either a top rail or top tension wire, and boulders.

Concrete barriers are available locally in lengths of 12.5 feet or 20 feet. The 12.5 foot barrier, which weighs 5,300 pounds, has a 32-inch height, a 24-inch base, and a 6-inch top. The maximum price, depending on the number ordered, is $100 per 12.5 foot barrier, delivered and set in place. That translates into $8.50 per linear foot or $2,550 for 100 linear yards.

Chain link fence is typically constructed of 9 gauge steel, and is 6 feet high with a top railing. It is installed with concrete posts placed 10 feet apart. A typical cost range is $11.00 – $13.00 per linear foot. That translates into $3,300 - $3,900 for 100 linear yards. Some savings could be realized if a top tension wire were used instead of a top railing.

The cost estimate for installing rock barriers is based on a hypothetical design of not less than five large boulders, with the largest boulders ranging in weight from 400 – 600 pounds each, placed in alignment two to three feet apart. The approximate weight per 24-foot section is 1.15 – 1.3 tons at a cost of $161 – $182. An additional cost of $1,700 was added for setting the rock barriers in place. This results in a linear foot cost of $7.00 – $7.90. The actual cost could be higher depending on the variability of boulder size. This may result in a greater weight range for boulders and hence a higher overall cost based on weight. Rock barriers, with a space of two to three feet between boulders, may not prevent trespassing by dirt bikes.

Increased law enforcement is needed in conjunction with barriers to effectively prevent trespassing. The cost of hiring off-duty enforcement officers is $35.00 per hour per officer. Two officers per vehicle are required. The cost for a patrol car is $4.00 per hour plus $0.70 per mile. Shifts are 7 hours long and average about 35 miles. For calculating the annual cost of additional law enforcement, 234 shifts were used for an annual total of 1,638 hours. Based on this scenario, the cost for the enforcement officers is $114,660 annually. The vehicle cost is $12,285, or 1,638 hours at $4.00 per hour and 234 shifts of 35 miles times $0.70 per mile. The estimated total annual cost is $126,945.

Establishing Wind Breaks. Another feasible alternative is to cover chain link fencing with a mesh screen. The cost range for constructing a wind-break fence is the same for chain link fencing plus a $2.00 per linear foot cost for adding the mesh screen. Thus, the $13.00 - $15.00 per linear foot translates into $3,900 - $4,500 for 100 linear yards.

The spacing and placement of wind breaks is critical. However, this option may not be realistic because of the cost and the great number of wind breaks required. Other options for creating wind breaks could be employed, such as piling rocks or building small hills. The effectiveness and costs associated with these options are unknown.

Table 4.3.3.3 presents the estimated costs for control measures to be applied to open areas and vacant lots in the Salt River PM_{10} Study Area. It is assumed that approximately 13.6 percent of the vacant lots, and 39 percent of the open areas, will be converted to residential and commercial use between Year 2002 and Year 2006.

Table 4.3.3.3 Estimated Cost for Control Measures (dollars) – Open Areas and Vacant Lots

Control Measure	Cost per Acre	Cost per Linear Foot	Total Acres	Total Linear Feet*	Total Cost
Establish a vegetative cover	16,000 – 21,000	N/A	2,065		$33,040,000 – $43,365,000
Restore to nearby native vegetation	16,208 – 21,732	N/A	2,065		$33,469,520 – $44,876,580
Apply dust suppressant	9,680 – 12,100	N/A	2,065		$19,989,200 – $24,986,500
Apply gravel	9,888 – 10,803	N/A	2,065		$20,418,720 –$22,308,195
Establish mechanical wind breaks chain link fencing with mesh		13.00 – 15.00		523,915	$6,810,895 – $7,858,725
Create barriers to trespassing chain link fencing concrete barrier boulders law enforcement	Law enforcement: ($70/hr for 2 officers + $4/hr for car + $0.70/mile)	11.00 – 13.00 8.50 7.00 – 8.00		523, 915	$5,763,065 – $6,810,895 $4,453,278 $3,667,405 – $4,138,929 $126,945
Establish a vegetative cover with barriers to trespassing	16,000 – 21,100	7.00 – 13.00	2,065	523,915	$36,707,405 – $50,382,395
Restore to nearby native vegetation with barriers to trespassing	16,208 – 21,732	7.00 – 13.00	2,065	523,915	$37,136,925 – $51,687,475
Apply dust suppressant with barriers to trespassing	9,680 – 12,100	7.00 – 13.00	2,065	523,915	$23,656,605 – $31,797,395
* Barriers to Trespassing control measures should be combined with additional law enforcement to effectively reduce trespassing. Additional law enforcement would add $126,945 per year to the Barriers to Trespassing control measures.					

Table 4.3.3.4 presents the estimated costs for control measures to be applied to unstable areas of the Salt River alluvial channel.

Table 4.3.3.4 Estimated Cost for Control Measures (dollars) – Alluvial Channel

Control Measure	Cost per Acre	Cost per Linear Foot	Total Acres	Total Linear Feet*	Total Cost
Establish a vegetative cover	16,000 – 21,000	N/A	153		$2,448,000 – $3,213,000
Restore to nearby native vegetation	16,208 – 21,732	N/A	153		$2,479,824 - $3,324,996
Apply dust suppressant	9,680 – 12,100	N/A	153		$1,481,040 – $1,851,300
Apply gravel	9,888 – 10,803	N/A	153		$1,512,864 – $1,652,859
Apply river rock	4,000	N/A	153		$612,000
Apply broken concrete debris	425 – 567	N/A	153		$65,025 – $86,751
Establish mechanical wind breaks - chain link fencing with mesh		13.00 – 15.00		173,190	$2,251,470 – $2,597,850
Create barriers to trespassing - chain link fencing - concrete barrier - boulders - additional law enforcement	Law enforcement: ($70/hr for 2 officers + $4/hr for car + $0.70/mile)	11.00 – 13.00 8.50 7.00 – 8.00		5,000	$55,000 – $65,000 $42,500 – $42,500 $35,000 – $39,500 $126,945
*Establish a vegetative cover with barriers to trespassing	16,000 – 21,000	7.00 – 13.00	153	5,000	$2,483,000 – $3,278,000
*Restore to nearby native vegetation with barriers to trespassing	16,208 – 21,732	7.00 – 13.00	153	5,000	$2,483,000 - $3,278,000
*Apply dust suppressant with barriers to trespassing	9,680 – 12,100	7.00 – 13.00	153	5,000	$1,516,040 – $1,916,300
*Establish mechanical wind breaks with barriers to trespassing		13.00 – 15.00, 7.00 – 13.00		173,190 + 5,000	$2,286,470 – $2,662,850
* Barriers to Trespassing control measures should be combined with additional law enforcement to effectively reduce trespassing. Additional law enforcement would add $126,945 per year to the Barriers to Trespassing control measures.					

Table 4.3.3.5 Estimated Cost-Effectiveness – Open Areas and Vacant Lots			
Control Measure	**Emissions Reduced on High Wind Days (metric tons/day)***	**Total Cost**	**Cost-Effectiveness per Ton PM_{10} Reduced ($ per ton reduced for 6 wind events)**
Establish a vegetative cover	7.77	$33,040,000 – $43,365,500	$708,709 – $930,191
Restore to nearby native vegetation	7.77	$33,469,520 – $44,876,580	$717,922 – $962,604
Apply dust suppressant	6.90	$19,989,200 – $24,986,500	$482,831 – $603,539
Apply gravel	12.94	$20,418,720 – $22,308,195	$262,992 – $287,329
Establish mechanical wind breaks - chain link fencing with mesh	6.90	$6,810,895 – $7,858,725	$164,514 – $189,824
Create barriers to trespassing - chain link fencing - concrete barrier - boulders - additional law enforcement	5.18	 $5,763,065 – $6,810,895 $4,453,278 $3,667,405 – $4,138,929 $126,945	 $185,427 – $219,141 $143,284 $117,999 – $133,170 ----
**Establish a vegetative cover with barriers to trespassing	15.53	$36,707,405 – $50,382,395	$393,941 – $540,700
**Restore to nearby native vegetation with barriers to trespassing	15.53	$37,136,925 – $51,687,475	$398,550 – $554,706
**Apply dust suppressant with barriers to trespassing	13.80	$23,656,605 – $31,797,395	$285,708 – $384,027
* One wind event **Barriers to Trespassing control measures should be combined with additional law enforcement to effectively reduce trespassing. Additional law enforcement would add $126,945 per year to the Barriers to Trespassing control measures.			

Table 4.3.3.6 presents the estimated costs and cost-effectiveness for control measures required to stabilize the 153 acres of disturbed soils in the alluvial channel. For the year 2002, PM_{10} emissions were estimated to be 9.8 metric tons/day.

Table 4.3.3.6 Estimated Cost-Effectiveness – Alluvial Channel			
Control Measure	**Emissions Reduced on High Wind Days (metric tons / day) ***	**Total Cost ($)**	**Cost-Effectiveness per Ton PM_{10} Reduced ($ per ton reduced for 6 wind events)**
Establish a vegetative cover	3.53	$2,448,000 – $3,213,000	$115,581 – $151,700
Restore to nearby native vegetation	3.53	$2,479,824 - $3,324,996	$117,083 - $156,988
Apply dust suppressant	3.14	$1,481,040 – $1,851,300	$78,611 – $98,264
Apply gravel	5.89	$1,512,864 – $1,652,859	$42,809 – $46,770
Apply river rock	5.49	$612,000	18,579
Apply broken concrete debris	5.49	$65,025 – $86,751	$1,974 – $2,634
Establish mechanical wind breaks - chain link fencing with mesh	3.14	$2,251,470 – $2,597,850	$119,505 – $137,890
Create barriers to trespassing - chain link fencing - concrete barrier - boulders - additional law enforcement	2.35	 $55,000 – $65,000 $42,500 – $42,500 $35,000 – $39,500 $126,945	 $3,901 – $4,610 $3,014 – $3,014 $2,482 – $2,801 ----
**Establish a vegetative cover with barriers to trespassing	7.06	$2,483,000 - $3,278,000	$58,617 – $77,384
**Restore to nearby native vegetation with barriers to trespassing	7.06	$2,514,824 - $3,389,996	$59,368 - $80,028
**Apply dust suppressant with barriers to trespassing	6.28	$1,516,040 – $1,916,300	$40,235 – $50,857
**Establish mechanical wind breaks with barriers to trespassing	6.28	$2,286,470 – $2,662,850	$60,681 – $70,670
* One wind event ** Barriers to Trespassing control measures should be combined with additional law enforcement to effectively reduce trespassing. Additional law enforcement would add $126,945 per year to the Barriers to Trespassing control measures.			

Auxiliary Advantages/Disadvantages

Establishing a Vegetative Ground Cover. Establishing a vegetative ground cover would reduce soil loss due both to wind erosion and water erosion. Additional benefits include providing wildlife habitat and lowering of summertime temperatures due to shading of the soil by vegetation.

Restoring to Similar Vegetative and Soil Conditions of Adjacent or Nearby Native Areas. See benefits above of establishing vegetative cover.

Applying Dust Suppressant. A disadvantage of applying dust suppressants in the Salt River alluvial channel is the potential leaching of chemicals from the suppressant into storm water or ground water.

Applying Gravel. A disadvantage of applying gravel to the wildcat roads in the alluvial channel is that it may provide easier access with the associated subsequent disturbance of stabilized areas.

Applying River Rock. This measure would give a natural appearance to the alluvial channel.

Applying Broken Concrete from Construction Debris. This measure may reduce or eliminate illegal motor vehicle traffic in the alluvial channel. In addition, this measure would reduce the amount of construction debris entering landfills.

Creating Barriers to Trespassing. This measure would reduce illegal dumping.

Establishing Wind Breaks. Wind breaks enhance the control effectiveness of the vegetative cover and dust suppressant control measures listed above.

BACM/MSM Analysis

MCESD Rule 310.01 Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots, and Unpaved Roadways:

§ 301 Vehicle Use in Open Areas and Vacant Lots. Requires implementation of one of the following control measures for open areas and vacant lots 0.10 acre or larger (4,356 square feet) that have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles:

- Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access, by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures.
- Uniformly apply and maintain surface gravel or chemical/organic stabilizers to all areas disturbed by motor vehicles and/or off-road vehicles.

§ 302 Open Areas and Vacant Lots. Requires implementation of one of the following control measures within 60 calendar days following the initial discovery of the disturbance for open areas and vacant lots that have 0.5 acre or more (21,780 square feet) of disturbed

surface area and remain unoccupied, unused, vacant, or undeveloped for more than 15 days:

- Establish vegetative ground cover on all disturbed surface areas
- Apply a dust suppressant to all disturbed surface areas
- Restore all disturbed surface areas such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.
- Uniformly apply and maintain surface gravel

Similar Rules

Summaries of similar rules for control measures applicable to open areas, vacant lots, and alluvial channels follow:

Clark County, Nevada – Air Quality Regulations, Section 90.2.1.1(a) & (b). Owner/operator required to implement controls for open areas and vacant lots 5,000 square feet or larger, such as:

- Prevent motor vehicle access, and
- Stabilize disturbed surface greater than 5,000 square feet with gravel or dust palliatives.

Clark County, Nevada - Clark County June 2001, PM_{10} SIP, Appendix L, p. L-11.

- Commitment to hire ten new enforcement department staff members to implement enforcement for "wind erosion – vacant land, unpaved parking and race tracks"

Coachella Valley, California - Final 2002 Coachella Valley PM_{10} SIP, June 2002. Owners/operators of vacant lands with disturbed surfaces greater than or equal to 5,000 square feet are required to either (proposed, revised dust control ordinance):

- Prevent trespass by installing physical barriers such that a surface crust is developed, or
- Treat the disturbed surfaces such that a surface crust is formed. Treatment options include uniform application and maintenance of two inches of washed gravel or chemical/organic dust suppressants to all disturbed areas at a level sufficient to develop and maintain a surface crust.

When an owner/operator has applied physical access restrictions and an acceptable surface crust has not been established, treatment of disturbed vacant lands with greater than or equal to 5,000 square feet will be required unless such treatments are considered technically infeasible.

SCAQMD, California - 403(d)(1). Disturbed areas must be controlled to prevent visible emissions from crossing the property line. Disturbed Surface Areas/Inactive Construction Site BACM from the Rule 403 Implementation Handbook:

- Chemical stabilization – Most effective when used on areas where active operations have ceased.

- Watering – Requires frequent applications unless a surface crust can be developed.
- Wind fencing – Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of windblown material leaving a site. Must be used in conjunction with an additional measure chemical stabilization, watering, or vegetation.
- Vegetation – Establish as quickly as possible when active operations have ceased.
- High Wind Measures - Apply chemical stabilizers (to meet the specifications established by the Rule); or apply water to all disturbed surface areas 3 times per day.

San Joaquin Valley Air Quality Control District PM_{10} SIP, 2003, Rule 8051. Owners of open areas with more than three acres of disturbed surfaces that remain vacant or unused for more than seven days are required to implement one or a combination of control measures (watering, vegetation, paving, gravel, vehicle restrictions) to maintain a stabilized surface and limit visible dust emissions to no more than 20 percent opacity.

Selected Control Measures for Open Areas, Vacant Lots, and the Alluvial Channel

The selected control measure for windblown dust from open areas and vacant lots is better enforcement and augmentation of MCESD Rule 310.01 pertaining to the control of fugitive dust. Current control options include establishing/restoring vegetative cover, applying gravel, river rock, broken concrete, or dust suppressants, and creating barriers to trespassing. A recommended augmentation to Rule 310.01 is the addition of wind breaks as a control measure in conjunction with other control measures. The most significant control method appears to be the stabilization of soils and barriers to prevent vehicular trespassing.

Windblown Agricultural

Windblown PM_{10} emissions from agricultural fields originate from tilling and harvesting practices and wind erosion of disturbed topsoil in the time period between harvesting and when a crop is tall enough to act as a wind break. The quantity of PM_{10} that is generated is closely linked to the management of soils and the amount of mechanical disturbance. Soil disturbance changes soil structure by breaking up aggregates and allowing particles smaller than 10 µm in size to be easily suspended in the air by wind.

A wide range of variation in soils and cropping systems exists within Maricopa County, which necessitates a wide range of flexible and adaptable management practices. Most methods for controlling PM_{10} and dust emissions from agricultural fields parallel the controls for wind erosion. These methods are based on principles that contain or slow soil movement from fields. Measures to minimize soil disturbance and the entrainment of topsoil into the air by wind are discussed below.

The Governor's Agricultural Best Management Practices (BMPs) Committee was formed to evaluate options for reducing PM_{10} emissions from agricultural sources. A BMP is defined as a technique verified by scientific research that, on a case-by-case basis, is practical, economically feasible, and effective in reducing PM_{10} from a regulated agricultural activity. BMPs are not designed to eliminate dust emissions 100 percent, but are expected to reduce wind erosion and associated PM_{10}. BMPs were developed for each of the three agricultural categories: tillage and harvest, non-cropland, and cropland.

The Agricultural BMP program has been approved by EPA as BACM/MSM (see 67 FR 48718, July 25, 2002). Consequently, no further changes are proposed. Additional outreach to farmers will occur to encourage them to use practices that will reduce the potential for windblown dust from fields during the month of April.

4.3.4 PERMITTED INDUSTRIAL SOURCE CONTROL MEASURES

Industrial sources with a variety of particulate matter emissions are located throughout the Salt River SIP Study Area. These emissions are categorized into four groups: windblown stockpiles, windblown cleared areas, industrial point sources, and industrial area sources including emissions from material handling, processes, and driving on haul roads. Considering the application of control technologies in accordance with permit requirements, the total emissions generated by the industrial sources in the Salt River SIP Study Area are approximately 1,054,000 pounds per year, based on actual emissions reported in the MCESD 2002 emissions inventory and on independent calculations of windblown emissions based on six high-wind days with four hours of high wind per day in a year. Table 4.3.4.1 shows the daily breakdown of emissions by category for the high wind day of April 15, 2002.

Table 4.3.4.1 Industrial Source Emissions by Category

Category	Particulate Emissions tons/day
Windblown Stockpiles	4.9
Windblown Cleared Areas	42.9
Industrial Point Source	0.3
Industrial Area Source	0.5
Total	48.6

A partial list of the industrial activities evaluated in the Salt River SIP Study Area includes aluminum melting, brick kilns, asphalt batch plants, concrete batch plants, mulch manufacturing, steel fabrication, sand and gravel mining, furniture manufacturing, concrete block manufacturing, and wastewater treatment. Emissions from all of these types of facilities were included in the emissions inventory and the air quality modeling.

Although point source (stack) emissions are 38% of the total industrial emissions (not including windblown), the better dispersion from taller stacks diminishes their effect on air quality. For example, stack emissions were significant for only one of the eight exceedances, as opposed to six significant concentrations for industrial area emissions. Within the industrial area category, the combination of haul roads, material transfer, pile forming and loading, and crushing & screening accounts for 91% of the total. Most of these emissions come from sand & gravel operations and their kindred industries, sometimes known as the “non-metallic mineral products industry.”

All industrial sources in the Salt River SIP Study Area were evaluated for compliance with BACM/MSM. Only those sources that did not meet BACM/MSM were evaluated further. The vast majority of these emissions come from the non-metallic mineral products industry, and the current controls on this industry warranted further evaluation. Most of the emphasis for the industrial source control measures is on the non-metallic mineral products processing industry.

Non-Metallic Mineral Products Processing

Several aspects of non-metallic mineral products processing were evaluated separately: stack and process related emissions for crushing and screening, concrete and asphalt batch plants; windblown cleared areas; stockpiles; and unpaved haul and access roads.

Stack and Process Related Emissions

Background

The production, processing and use of various non-metallic minerals products generate particulate emissions in the form of dust. Quite often, as in the case of rock crushing or screening, the dust is identical in composition to the material being handled. Emissions also occur from handling and storing the finished products because this material is often fine and dry. Particulate emissions from some of the processes such as quarrying, yard storage, and dust from transport are difficult to control, but most can be reduced by conventional emission reduction techniques. Due to the wide variety in processing equipment and final products, emissions levels can vary greatly.

Several types of facilities generate particulate matter emissions as a result of performing non-metallic mineral processing activities. These activities include, but are not limited to aggregate screening, transferring aggregate to elevated storage bins, weigh hopper loading, aggregate transfer to conveyor belts, aggregate delivery to ground storage, and bulk loading of material into trucks.

The PM_{10} emissions from non-metallic mineral processing plants that are of particular concern are uncontrolled non-stack emissions. These are emissions that are a result of processing non-metallic mineral products that do not have an identified stack. Examples of such emission points include screens, crushers, storage bins and hoppers, conveyor belts, drop points, and loading trucks.

Potential Control Measures.

Control measures for reducing particulate matter emissions from non-metallic mineral processing plants are listed below:

> ***Work Practice Standards.*** Work practice standards can include timing of activities and methods of operation used at a facility that will reduce emissions.
>
> ***Complete Enclosure.*** An emissions source can be completely enclosed by relocating the source from outside to inside a building or by constructing an enclosure around it, thereby preventing emissions to the atmosphere. Emissions sources that can be controlled by this method include plant feeding, handling, crushing, and screening operations; concrete batch plant mixer loading and concrete batch truck loading; sand/aggregate transfer to conveyors and other areas; transit mix trucks loading; and materials transfer points.
>
> ***Partial Enclosure.*** Partial enclosures partially cover the emission point, thereby partially reducing, but not completely, particulate emissions to the atmosphere. Partial enclosures can be in the form of sheds, hoods, or shrouds. Emission sources that can be controlled by this method include plant feeding, handling, crushing, and screening operations; pile forming; load out; concrete batch plant mixer loading and transit mix truck loading; concrete batch truck loading; sand/aggregate transfer to conveyors and other areas; and material transfer points.

Baghouse Filtration System. Baghouse filtration systems can be used in two ways: 1) a baghouse fabric filter can be attached to the exhaust of a bin or silo vent or 2) a ducting system with a suction shroud can be constructed to draw process emissions into a baghouse fabric filter. Emissions sources that can be controlled by these methods include screening operations; aggregate transfer to elevated bins; weigh hopper loading; aggregate transfer to conveyors; aggregate delivery to ground storage; crushing and shredding of scrap metal; materials transfer points; and bulk loading of material into trucks.

Dust suppressants. The use of dust suppressants involves spraying some type of chemical coating on aggregate raw materials either before processing or during transportation, for example, on conveyor belts. Emissions sources that can be controlled by this method include plant feeding, handling, and crushing operations; concrete batch plant mixer loading and concrete batch truck loading; sand/aggregate transfer to conveyors and other areas; transit mix truck loading; and materials transfer points.

Emission Reductions

When applying the control measures described above to the Non-Metallic Mineral Products Processing source category, the emissions reductions shown in Table 4.3.4.2 can be achieved. As discussed in the following Technical Feasibility section, the use of dust suppressants was found to be technically infeasible; therefore, they are not included in this table. The baseline Rule Effectiveness assumption for sources subject to Rule 316 is documented on pages 4-32 through 4-34 in the October 2004 TSD.

Table 4.3.4.2 Emissions Reductions for Non-Metallic Mineral Processing Control Measures

Emission Point/ Control Measure	PM_{10} Emissions Controllable lb/hr (tons)	PM_{10} Emissions Eliminated lb/yr (tons/yr)	Percent Reduction in Total Industry Emissions	Percent Reduction in Industry Category Emissions
Work Practice Standards	10897.3 (5.4)	8960 (4.5)	1.3%	2.3%
Partial Enclosure	10897.3 (5.4)	9444 (4.7)	1.4%	2.5%
Complete Enclosure	10897.3 (5.4)	9929 (5.0)	1.5%	2.6%
Baghouse for Bin/Silo Vents	47648 (23.8)	40,658(20.3)	6.1%	10.7%
Baghouse/Suction Shroud and Bin/Silo Vents	55467 (29.3)	51,071 (25.5)	7.7%	13.4%

For instance, by implementing the requirement for all bin vents or silo vents to be equipped with a baghouse, PM_{10} emissions from point sources without a stack would be reduced by 20.3 tons or 10.7%.

Rule Compliance/Test Methods/Recordkeeping

Rule Compliance:

- Require all aggregate material to be washed prior to delivery.
- Install a warning device on each bulk storage silo. This device shall alert operators in sufficient time prior to the silo reaching capacity during loading operations so that the

loading operation can be stopped prior to filling to such a level as to potentially adversely impact the pollution abatement equipment.
- Spillage of materials used in the batch shall be immediately cleaned up and contained or dampened so that dust emissions are minimized.

Test Methods:

All filter systems, mixer loading, and batch truck loading emissions control devices shall meet a performance standard of no visible emissions exceeding 30 seconds in any six-minute period as determined using U.S. Environmental Protection Agency (EPA) Test Method 22; No visible fugitive dust emissions beyond the permittee's property line.

Technical Feasibility

Partial or full enclosures and hoods, such as suction shrouds, are widely used methods to capture and control particulate matter emissions from non-metallic mineral processing facilities. For instance, a suction shroud and baghouse achieving 95% control efficiency is required in many jurisdictions, such as the TCEQ and the Utah Division of Air Quality.

A suction shroud and baghouse combination can control particulate matter emissions from conveyors, drop points, crushing and screening and many more processes with an overall control efficiency of 95% to 99%. The suction shroud and baghouse combination consists of a ventilation system or a large canopy-type hood suspended over a localized source of PM_{10}. Emissions are forced through a baghouse resulting in 95-99% capture. The ventilation system must be uniquely designed to conform to the facility configuration. In addition, the ventilation system must allow for process access, which could impact the ventilation system's performance and decrease productivity of the production line. In some facilities, ventilation hooding and its ductwork may be difficult to retrofit due to space limitations or the fact that the facility is portable. Ventilation systems are designed to meet the criteria in EPA Contract #68-D-98-026 titled, *Stationary Source Control Techniques Document for Fine Particulate Matter,* October 1998. The hood needs to encompass, as much as possible, the source of particulate matter emissions without excessively interfering with the access needed for normal operations. The hood should be designed and installed in a manner that directs emissions into the hood through either natural buoyancy or mechanical forces, rather than away from the hood. The ventilation system must be designed to operate within required parameters, such as recommended face velocities, which typically range between 75 to 150 meters per minute. In summary, a ventilation system may be feasibly implemented for most operations through careful design and planning; however, some operations may require severe retrofitting, which would preclude its use.

Currently, numerous BACT analyses have been conducted on different non-metallic mineral processes. These are listed in EPA's RACT/BACT/LAER Clearinghouse (RBLC) database, California ARB BACT Clearinghouse, San Diego County's Air Pollution Control District (APCD) BACT Guidelines, and San Joaquin Valley's APCD BACT Guidelines. Within these BACT guidelines, baghouses have been installed on concrete batch facilities, conveyor points, silo/bin vents, crushing and screening operations, and many additional similar activities. Dust suppressants and partial and full enclosures have been utilized to control emissions from conveyors and crushing and screening operations. The proposed methods for controlling PM_{10} emissions from non-metallic mineral processing described herein have been documented by others, achieved in practice, and are technically feasible.

Dust suppressants are feasible on limited processes in industry, but are not as popular or used with the same frequency as enclosures or baghouses. The use of dust suppressants is limited because of compatibility issues with raw materials and the potential of contaminating the final product. Industrial processes using heat may increase emissions from dust suppressants or produce unwanted byproducts. For these reasons, dust suppressants are not technically feasible for controlling particulate matter emissions from emissions points such as conveyors, crushers, screening operations and drop points.

To summarize, the control measures of dust suppressants, partial enclosures, full enclosures and baghouses, described above, are successfully used in practice and are required by other air quality districts. Dust suppressants, however, are not technically feasible for use by industries in the Salt River area because of operational limitations. No technical limitations are experienced for implementing baghouses, suction shrouds, partial enclosures and full enclosures.

Economic Feasibility

Retrofitting existing plants with updated controls can be resource intensive. Suction shrouds can cost $40,000 and suction shroud/baghouse systems range from $25,000 to $50,000.

Auxiliary Advantages/Disadvantages

Advantages. A baghouse filtration system is easily maintained and achieves highly effective emissions control. Enclosures, both full and partial, exhibit a high level of capture and control, have a one-time installation cost, minimal maintenance and operating costs, and have no energy costs. Dust suppressants are easy to use and have crossover benefits with stockpiles and materials handling.

Disadvantages. A baghouse filtration system is difficult to retrofit in some facilities due to space limitations and in portable sources, has energy costs. Local ventilation systems may limit personnel and equipment access. Enclosures, both full and partial, limit equipment access and sometimes pose retrofit issues, especially for portable sources. Dust suppressants have a number of potential disadvantages: incompatibility issues with final product, negative environmental impacts, material and operations costs, operator error when applying the suppressant, frequent application requirements, potentially increased inspections, and the potential leaching of chemicals from the suppressant into storm water or ground water.

Cost-Effectiveness

The cost-effectiveness of various potential control measures is presented below:

Baghouse Only. A cost analysis was performed on one baghouse that was assumed to be 5,000 actual cubic feet per minute of air intake. The baghouse would be installed on bin/silo vents to achieve a 10.7% reduction in overall total point source non-stack emissions or a reduction of 20.3 tons. The cost of the equipment and annual operating costs for “one” baghouse are summarized below:

Total capital investment = $23,782
Annual operation costs = $69,538

The cost-effectiveness of requiring baghouses to be installed on silo and bin vents is summarized in Tables 4.3.4.3 and 4.3.4.4. It should be noted that the cost is based on one control device per all controllable emissions.

Table 4.3.4.3: Cost-Effectiveness as a function of Capital Cost per Baghouse System	
Unit	**Cost**
$ per % reduction in total non-point source emissions	$2,223
$ per ton of PM_{10} emissions eliminated	$1,172
$ per % change in PM_{10} emissions controllable and eliminated	$280

Table 4.3.4.4: Cost-Effectiveness as a function of Annual Operating Cost per Baghouse System	
Unit	**Cost**
$ per % reduction in total non-point source emissions	$6,499
$ per ton of PM_{10} emissions eliminated	$3,426
$ per % change in PM_{10} emissions controllable and eliminated	$818

Baghouse with Suction Shroud. A cost analysis was performed on one baghouse with suction shroud. The baghouse is assumed to be 5000 actual cubic feet per minute of air intake and the suction shroud is assumed to have a face area of 36 ft^2. The baghouse and suction shroud would be installed on bin/silo vents conveyors, crushers and drop points to achieve a 13.4% reduction in overall total point source non-stack emissions or a reduction of 25.5 tons. The cost of the equipment and annual operating costs for "one" baghouse and one suction shroud are summarized below:

Total capital investment = $30,243
Annual operating costs = $89,566

In addition, the Air Quality Standard Permit for Concrete Batch Plants from the TCEQ shows that to retrofit plants with a baghouse and suction shroud would cost $40,000 as seen on page 29 of the TCEQ Permit, or $25,000 to $50,000 as seen on page 30 of the that Permit.

Using the calculated total capital investment and annual operating costs, the cost-effectiveness of requiring baghouses and suction shrouds to be installed on silo and bin vents, conveyors, crushers, and drop points is summarized in Tables 4.3.4.5 and 4.3.4.6 (it should be noted that the cost is based on one control device per all controllable emissions):

Table 4.3.4.5: Cost-Effectiveness as a function of Capital Cost for One Baghouse & Suction Shroud System	
Unit	**Cost**
$ per % reduction in total non-point source emissions	$2,257
$ per ton of PM_{10} emissions eliminated	$1,186
$ per % change in PM_{10} emissions controllable and eliminated	$348

Table 4.3.4.6: Cost-Effectiveness as a function of Annual Operating Cost for One Baghouse & Suction Shroud System	
Unit	**Cost**
$ per % reduction in total non-point source emissions	$6,684
$ per ton of PM_{10} emissions eliminated	$3,512
$ per % change in PM_{10} emissions controllable and eliminated	$1,029

Dust suppressants. Dust suppressants are determined to be not technically feasible; therefore, a cost-effectiveness evaluation was not conducted.

BACM and MSM Analysis

Tables 4.3.4.7 – 4.3.4.9 outline current control measures, benchmarked control measures, and additional recommended control measures for crushing and screening plants, concrete batch plants, and hot mix asphalt plants. Currently, MCESD Rule 316 regulates this source category. MCESD Rule 316 is modeled after the New Source Performance Standard (NSPS), 40 CFR 60 Subpart OOO entitled "Standards of Performance for Nonmetallic Mineral Processing Plants." The recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Augmentation of Rule 316 to include the portions of Rule 310 that are relevant to non-metallic mineral product processing is a selected control measure in addition to the measures shown in the table. The following table outlines current controls, benchmarked controls, and recommended augmentations to Rule 316 for non-metallic mineral mining and processing. Currently Maricopa County Rule 316 regulates this source category. Maricopa County Rule 316 is modeled after the NSPS, 40 CFR 60 Subpart OOO entitled, "Standards of Performance for Nonmetallic Mineral Processing Plants." The recommended changes are additional control measures that are proposed as MSM for Maricopa County Rule 316.

Table 4.3.4.7 Maricopa County Rule 316: CRUSHING AND SCREENING PLANTS

Current Rule 316 Controls	Benchmarked Controls	Recommended Augmentations to Rule 316
Stack emissions from Crushing and Screening Plants are limited to 7% opacity or containing no more than 0.02 grains per dry standard cubic foot of particulate matter	None	Require all stack emissions to be vented to a baghouse, and retain the existing language.
Fugitive dust emissions from Crushing and Screening Plants are limited to 7% opacity from any transfer point on a conveyor system.	TCEQ, Texas Administrative Code (TAC) §111.143 Materials Handling: Installation, maintenance and proper use of hoods, fans and filter to enclose, collect and clean the emissions of dusty materials. Florida, Florida Administrative Code (FAC) 62-296.711 Materials Handling, Sizing, Screening Crushing and Grinding Operations: if it is necessary to totally or partially enclose an operation and exhaust particulate laden gases through a vent or stack, emissions of particulate from such vent or stack shall not exceed 0.03 gr/dscf SCAQMD, BACT Guidelines for Non-Major Polluting Facilities: Enclosed conveyors and baghouse TCEQ, Permit by Rule §106.144, Bulk Mineral Handling: All material shall be transported in a closed conveying system and all exhaust air to the atmosphere shall be vented through a fabric filter having a maximum filtering velocity of 4.0 feet per minute with mechanical cleaning or 7.0 feet per minute with automatic air cleaning.	No change Flexibility is preserved for sources to choose most efficient means of achieving required opacity limit which is at least as stringent as benchmarked controls.

Table 4.3.4.7 Maricopa County Rule 316: CRUSHING AND SCREENING PLANTS		
Current Rule 316 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Fugitive dust emissions from Crushing and Screening Plants are limited to 15% opacity from any crusher.	None	No change No benchmarked controls were identified.
Fugitive dust emissions from Crushing and Screening Plants are limited to 10% opacity from any affected operation or process source excluding truck dumping directly into any screening operation, feed hopper or crusher.	None	No change No benchmarked controls were identified.
Fugitive dust emissions from Crushing and Screening Plants are limited to 20% opacity from any other affected operation.	None	No change No benchmarked controls were identified.
----	Permanently Mounted Watering Systems: The owner or operator shall install, maintain, and operate permanently mounted watering systems (such as spay bars, or an equivalent control) at all of the following locations: • Inlet and outlet of all crushers; • Inlet and outlet of all screens; and • Material transfer points.	The owner or operator shall install, maintain and operate permanently mounted watering systems (such as spray bars, or an equivalent control) at all of the following locations: • Inlet and outlet of all crushers; • Outlet of all screens; and • Material transfer points.
----	Work Practice Standards • All screen sides are required to be enclosed with at least an 85% mesh fabric filter. • The outlet of all screens shall be enclosed or controlled through the application of a watering system, such as, but not limited to, spray bars or foggers.	• All screen sides are required to be enclosed with at least an 85% mesh fabric filter. • The outlet of all screens shall be enclosed or controlled through the application of a watering system, such as, but not limited to, spray bars or foggers.
----	Visible Emissions Standard No visible fugitive emissions shall leave the property from the crusher, associated sources, and in-plant roads associated only with the facility.	No visible fugitive emissions shall leave the property from the crusher, associated sources, and in-plant roads associated only with the facility.
----	Method 9 Observer Require an EPA Method 9 observer to be on-site or on-call at all times.	Require an EPA Reference Method 9 observer to be on-site or on-call at all times.

The following table outlines current control measures, benchmarked controls, and recommended augmentations to Rule 316 for concrete batch plants. Currently, Maricopa County Rule 316 regulates this source category. The recommended changes are additional control measures that are proposed as MSM for Maricopa County Rule 316.

Table 4.3.4.8 Maricopa County Rule 316: CONCRETE BATCH PLANTS		
Current Rule 316 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Stack emissions from Concrete Batch Plants are limited to 7% opacity	TCEQ, Concrete Batch Plant Technical Guidance for Mechanical Sources, January 2001, Draft: • All dry material storage silos equipped with fabric filter baghouse having a maximum outlet grain loading of 0.01 grains per dry standard cubic foot • All storage silos must be equipped with audible or visual warning devices to prevent overloading.	In addition to the existing opacity requirement, require all cement and fly-ash silos to be equipped with baghouse or equivalent control device. All new control devices shall be designed to meet an emission limitation of 0.01 grains per dry standard cubic foot. A 5% opacity limit is inappropriate due to differences in activities, types of control devices for these activities, work practices employed to reduce emissions, and because ADEQ could not identify another instance where a lower emission limitation was required of similar emissions units. All storage silos must be equipped with audible or visual warning devices to prevent overloading.
Fugitive dust emissions from Concrete Batch Plants are limited to 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper or crusher	TCEQ, Air Quality Standard Permit for Concrete Batch Plants, Effective Date July 10, 2003: Dust emissions at the batch mixer feed shall be controlled by one of the following: • A spray device which eliminates visible emissions • A pickup device delivering air to a fabric or cartridge filter • An enclosed batch mixer feed such that no visible emissions occur • Conducting the entire mixing operation inside the enclosed process building such that no visible emissions from the building occur during mixing activities	In addition to the existing opacity requirement, dust emissions at the batch mixer feed shall be controlled by one of the following: • A spray device which eliminated visible emissions; • A pickup device delivering air to a fabric or cartridge filter; • An enclosed batch mixer feed such that no visible emissions occur; or • Conducting the entire mixing operation inside the enclosed process building such that no visible emissions from the building occur during mixing activities.

Table 4.3.4.8 Maricopa County Rule 316: CONCRETE BATCH PLANTS		
Current Rule 316 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Fugitive dust emissions from Concrete Batch Plants are limited to 20% opacity from truck dumping directly into any screening operation feed hopper or crusher.	TCEQ, Air Quality Standard Permit for Concrete Batch Plants, Effective Date July 10, 2003: A suction shroud or other pickup device shall be installed at the batch drop point and vented to a fabric or cartridge filter system with a minimum of 4,000 actual cubic feet per minute of air. SCAQMD, BACT Guidelines for non-major polluting facilities: • Central mixed <5 cubic yards/batch – water spray • Central mixed >5 cubic yards/batch – baghouse for cement handling and adequate moisture in aggregate Transit-mixed—baghouse venting the cement weight hopper and the mixer truck loading station and adequate aggregate moisture	No change TCEQ's rule applies to the operation dumping into the truck. Rule 316 applies to the truck dumping into the operation. SQAMD BACT Guidelines apply to the operation dumping into the truck. Rule 316 applies to the truck dumping into the operation.
	Visible Emissions Standard for Cement Silos All cement silo loading operations shall be controlled by a pressure control system that discontinues the loading process if excessive pressure is being used to load the cement silo.	All cement silo loading operations shall be controlled by a pressure control system that discontinues the loading process if excessive pressure is being used to load the cement silo.
	Work Practice Standards Spillage of materials used in the batch shall be immediately cleaned up and contained or dampened so that dust emissions are minimized. Dust emissions at the batch mixer feed shall be controlled by one of the following: (i) A spray device; (ii) A pickup device delivering air to a fabric or cartridge filter; (iii) An enclosed batch mixer feed such that no visible emissions occur; or (iv) Conducting the entire mixing operation inside the enclosed process building such that no visible emissions from the building occur during mixing activities.	Spillage of materials used in the batch shall be immediately cleaned up and contained or dampened so that dust emissions are minimized. Dust emissions at the batch mixer feed shall be controlled by one of the following: (i) A spray device; (ii) A pickup device delivering air to a fabric or cartridge filter; (iii) An enclosed batch mixer feed such that no visible emissions occur; or (iv) Conducting the entire mixing operation inside the enclosed process building such that no visible emissions from the building occur during mixing activities.
----	Method 9 Observer Require an EPA Method 9 observer to be on-site or on-call at all times.	Require an EPA Reference Method 9 observer to be on-site or on-call at all times.

The following table outlines current control measures benchmarked controls, and recommended augmentations to Rule 316 for hot mix asphalt plants and material handling. Currently Maricopa County Rule 316 regulates this source category. Maricopa County Rule 316 is modeled after the New Source Performance Standard (NSPS), 40 CFR 60 Subpart I entitled "Standards of Performance for Hot Mix Asphalt Facilities." The recommended changes are additional control measures that are proposed as MSM for Maricopa County Rule 316.

Table 4.3.4.9 Maricopa County Rule 316: ASPHALT BATCH PLANTS		
Current Rule 316 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Stack emissions from Hot Mix Asphalt Plants are limited to 20% opacity and containing no more than 0.04 grains per dry standard cubic foot of particulate matter	TCEQ, Air Quality Standard Permit for Hot Mix Asphalt Plants, Effective Date July 10, 2003: The drum dryer exhaust shall be vented to and controlled by a properly sized fabric filter baghouse Silos not vented to the drum dryer system shall vent to a fabric filter system designed to meet at least 0.01 outlet grain loading	Require all drum dryers to be equipped with baghouse Require all cement and lime storage silos to be equipped with a baghouse. All new baghouses shall be designed to meet an emission limitation of 0.01 grains per dry standard cubic foot.
Fugitive dust emissions from Hot Mix Asphalt Plants are limited to 20% opacity from any other affected operation or process source.	Visible Emissions Standards A baghouse is required on the drum dryer and cement and lime storage silos with an opacity limit of not greater than 5% over a six-minute period.	A baghouse is required on the drum dryer and cement and lime silos with an opacity limit of not greater than 5% over a six-minute period.
----	Overfill Warning System An audible or visible overflow warning device shall be installed on each bulk storage silo to alert operators in sufficient time prior to the silo reaching capacity.	An audible or visible overflow warning device shall be installed on each bulk storage silo to alert operators in sufficient time prior to the silo reaching capacity.
----	Method 9 Observer Require an EPA Method 9 observer to be on-site or on-call at all times.	Require an EPA Reference Method 9 observer to be on-site or on-call at all times.

BACM and MSM Not Proposed for Consideration

Of the BACM and MSM measures that have been benchmarked, these additional measures have been considered, but are not recommended for inclusion in Rule 316 as they are either duplicative of other measures that are being proposed for adoption into Rule 316, or they are as stringent, or less stringent than other measures that have been proposed for adoption into Rule 316. In addition, because the permitting authorities in the State of Arizona do not write general permits into rule like permitting authorities in Texas, requirements restricting co-location (including ground-based concentration limitations) are not recommended because such scenarios are already accounted for in Arizona general permits, and must remain an option for sources seeking individual permits. Finally, nighttime illumination was rejected because of the history of complaints from nearby residents regarding excessive lighting from these types of facilities.

Crushing and Screening Plants

Visible Emissions Standard.

- ✓ *Clark County, Nevada; AQR Section 34 New Performance Standards for Nonmetallic Mineral Mining and Processing*
- ✓ *Oklahoma DEQ, General Permit for Minor Source Nonmetallic Mineral ProcessingTCEQ, Air Quality Standard Permit for Temporary Rock Crushers, February 2002*

Enclosures for Long-Term Facilities.

- ✓ *Bay Area Air Quality Management District BACT Guideline for rock and aggregate processing*

Work Practice Standards.

- ✓ *TCEQ, February 2002, Standard Permit for Rock Crushing Plants, BACT Analysis*
- ✓ *Oklahoma DEQ, General Permit for Minor Source Nonmetallic Mineral Processing*
- ✓ *Oklahoma DEQ, General Permit for Minor Source Nonmetallic Mineral Processing*
- ✓ *Oklahoma DEQ, General Permit for Minor Source Nonmetallic Mineral Processing*

Air Dispersion Analysis Based Rules.

- ✓ *TCEQ Rule §111.155. Ground Level Concentrations, Adopted June 16, 1989*
- ✓ *TCEQ, Air Quality Standard Permit for Temporary Rock Crushers, February 2002*

Concrete Batch Plants

Cement Silo Baghouse, Fabric Filter or Cartridge Filter Requirement.

- ✓ *TCEQ; Concrete Batch Plant Technical Guidance for Mechanical Sources, January 2001, Draft BACT Analysis*

Work Practice Standards.

- ✓ *Texas Requirements from Technical Guidance: TCEQ; Concrete Batch Plant Technical Guidance for Mechanical Sources, January 2001, Draft BACT Analysis*
- ✓ *Texas Requirements from Standard Permit for Concrete Batch Plants: TCEQ; Effective Date July 10, 2003*
- ✓ *Bay Area Air Quality Management District Requirements: BACT Guideline for Concrete Batch*
- ✓ *SCAQMD Requirements: BACT Guidelines for Non-Major Polluting Facilities; Concrete Batch Plant*
- ✓ *Florida Requirements: Florida; Florida Administrative Code 62-296.414 Concrete Batching Plants*

Production Limitations.

- ✓ *SCAQMD; BACT Guidelines for non-major polluting facilities Concrete batch plant*

Visible Emissions Standard.

- ✓ *Florida; Florida Administrative Code 62-296.414 Concrete Batching Plants*

Asphalt Batch Plants

Emissions Limitations and Standards.

- ✓ *Florida FAC 62-296.704 Asphalt Concrete Plants*

Air Dispersion Analysis Based Rules.

- ✓ *TCEQ Air Quality Standard Permit For Hot Mix Asphalt Plants Effective Date July 10, 2003*

Windblown Cleared Areas – Industrial

Background

Cleared areas with disturbed soils from industrial activities such as earthmoving are subject to the erosive effects of wind. As trucks and other vehicles move about a cleared site, soils become unstable, and winds above 15 mph can result in significant PM_{10} emissions.

Potential Control Measures

If an industrial facility does not have an earthmoving permit, the potential control measure for the areas subject to wind erosion is augmentation and better enforcement of MCESD Rule 316 for industrial sources. Currently, MCESD Rule 310 regulates all dust-generating operations; however, the following recommended change is an additional control measure that is proposed as MSM for MCESD Rule 316:

Stabilize surface soils where loaders, support equipment, and vehicles will operate by pre-watering and maintaining surface soils in a stabilized condition, or by applying and maintaining a dust palliative on surface soils.

Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of 310 that are currently applicable to this source category will remain applicable to this source category unless a more stringent measure is identified.

If an industrial facility has an earthmoving permit, the potential control measure for the areas subject to wind erosion is better enforcement of MCESD Rule 310 pertaining to the control of fugitive dust. A critical aspect of strengthening enforcement of the Rule 310 control measures is the hiring of as many as 25 to 30 additional inspectors for the entire program (this includes resources for the enforcement of Rule 316 pertaining to industrial sources).

The methods available under Rule 310 to control windblown dust emissions from disturbed areas include opacity restrictions, the use of water or dust suppressants, and the installation of wind barriers. Temporary measures to be implemented during weekends, after work hours, on holidays or high wind events include applying water, dust suppressants, or gravel, and restricting vehicular access.

Stockpiles

Background

As part of operations that use minerals in aggregate form is the control of outdoor aggregate handling and stockpiles. Aggregate handling and stockpiles are often left uncovered, partially because of the need for frequent material transfer into or out of storage. As a result, these aggregate handling and stockpiles are a significant source of particulate matter emissions. As front loaders and trucks add and remove materials from these points, a significant amount of particulate matter emissions are generated.

As seen in Section 13.2.4, titled "Aggregate Handling and Stockpiles" within the Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: *Miscellaneous Sources* by the Environmental Protection Agency, the amount of particulate emissions from aggregate handling and stockpiles varies with the amount of aggregate passing through the storage cycle. Additionally there are 3 parameters which effect emissions: moisture content, age of the pile, and proportion of aggregate fines.

Sources Controlled

Many sources contribute to particulate matter emissions from aggregate handling and stockpiles. Some industrial sources that deal with aggregate handling and stockpiles are the concrete batch plant and crushing and screening sources. Both sources use stockpiles and material handling in the same fashion. Aggregate is delivered on site and dumped in piles. Aggregate is then removed from the piles using front end loaders which deliver the material to conveyers, elevated storage bins, and/or feed hoppers.

Description of Emissions

Particulate matter emissions from aggregate handling and stockpiles are generated from a variety of conditions. When newly processed aggregate is loaded onto a stockpile, the potential for particulate matter emissions is at a maximum. Fines are easily agitated and released to the atmosphere upon exposure to air currents, either from disturbance of the pile by dumping or removal by front end loader, or from high winds.

Potential Control Measures

There are three main control measures available for reducing particulate matter emissions from aggregate handling and stockpiles: watering, chemical wetting agents, and partial or full enclosures. The following are potential control measures for reducing particulate matter emissions from aggregate handling and stockpiles.

> ***Chemical Additives.*** Chemical additives may be either wet or dry and can be added to the pile. The benefit to chemical additives is that it lasts longer with only one application. However, depending on the types of chemicals used it could be hazardous.
>
> ***Water.*** Water is the most common method employed for controlling emissions from stockpiles and aggregate handling. Water is especially useful in areas near the stockpile where vehicle traffic is the greatest.

Partial or Full Enclosures. Enclosures can be used to prevent wind erosion of stockpiles and aggregate handling areas.

Emission Reductions

With the implementation of the potential control measures listed above in Section 2, the following estimated emission reductions can be expected:

Chemical Additives. Chemical additives have a net decrease of emissions equal to 68% for stockpiles. For aggregate handling the net decrease of emissions is equal to 7%.

Partial Enclosures. Partial enclosures have a net decrease of emissions equal to 76% for stockpiles. For aggregate handling the net decrease of emissions is equal to 11%.

Full Enclosures. Full enclosures have a net decrease of emissions equal to 88% for stockpiles. For aggregate handling the net decrease of emissions is equal to 15%.

BACM/MSM Analysis

Table 4.3.4.10 outlines current control measures, benchmarked control measures, and additional recommended control measures for stockpiles. Currently, MCESD Rule 310 regulates stockpiles at industrial sources and construction sources. The recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of Rule 310 that are currently applicable to this source category will remain applicable to this source category unless a more stringent measure is identified.

The following table outlines current control measures, benchmarked control measures, and additional recommended control measures for stockpiles. Currently, Maricopa County Rule 310 regulates stockpiles at industrial and construction sources; however these recommended changes are additional control measures that are proposed as MSM for Maricopa County Rule 316. *Because Rule 310 already applies to emissions from this source category*, the intent is only to augment and supplement those controls that already exist. All portions of 310 that are currently applicable to this source category (including test methods, monitoring, recordkeeping and reporting) will remain applicable to this source category unless a more stringent measure has been identified.

Table 4.3.4.10 Maricopa County Rule 310: STOCKPILES

Current Rule 310 Controls	Benchmarked Controls	Recommended Augmentations to Rule 316
An open stockpile is any accumulation of bulk material with a 5% or greater silt content, which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM	None	An open stockpile is any accumulation of bulk material with a 5% or greater silt content, which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-01 or an equivalent method approved in writing by the Control Officer, Director and the

Table 4.3.4.10 Maricopa County Rule 310: STOCKPILES		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Method C136-01 or an equivalent method approved in writing by the Control Officer, Director and the Administrator of the EPA, that the silt content is less than 5%.		Administrator of the EPA, that the silt content is less than 5%.
Prior to and while conducting stacking, loading, and unloading operations, comply with one of the following work practices; • Spray material with water as necessary • Spray material with dust suppressant other than water as necessary	None	Prior to and while conducting stacking, loading, and unloading operations, comply with one of the following work practices; • Spray material with water as necessary • Spray material with dust suppressant other than water as necessary
When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:	None	When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:
• Cover open stockpiles with tarps, plastic, or other material to prevent wind from removing the coverings; • Apply water to maintain soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or an equivalent method as approved by the Control Officer, Director and the Administrator of the EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or an equivalent method approved by the Control Officer,	TCEQ – Requirements for Concrete Batch Plant • Stockpiles located no less than 25 or 50 feet from property line for a production rate of less than 200 or between 200 and 300, respectively. TCEQ – Requirements for Temporary rock crushers • Raw material and product stockpiles heights shall not exceed 45 feet Clark County Nevada §94.11.3 and § 41.1.1.2 • Stockpile located within 100 yards of occupied building shall not be constructed over eight feet in height • Stockpiles over eight (8) feet high and not covered must have a road bladed to the top to allow water truck/pull access or must have a sprinkler irrigation system installed that is capable of complete stockpile coverage	• Cover open stockpiles with tarps, plastic, or other material to prevent wind from removing the coverings; • Apply water to maintain soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or an equivalent method as approved by the Control Officer, Director and the Administrator of the EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or an equivalent method approved by the Control Officer, Director and the Administrator of the EPA, maintain at least 70% of the optimum soil moisture content; • Meet one of the following stabilization requirements: • Maintain a visible crust • Maintain a threshold friction

Table 4.3.4.10 Maricopa County Rule 310: STOCKPILES		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Director and the Administrator of the EPA, maintain at least 70% of the optimum soil moisture content; • Meet one of the following stabilization requirements; or o Maintain a visible crust o Maintain a threshold friction velocity for disturbed surface areas corrected for non-erodible elements of 100 cm/seconds or higher; o Maintain a flat vegetative cover that is equal to at least 50%; o Maintain a standing vegetative cover that is equal to or greater than 30%; o Maintain a standing vegetative cover that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; o Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or o Comply with a standard of an alternative test method, upon obtaining the written approval from the control officer and the administrator of the Environmental Protection Agency		velocity for disturbed surface areas corrected for non-erodible elements of 100 cm/seconds or higher; • Maintain a flat vegetative cover that is equal to at least 50%; • Maintain a standing vegetative cover that is equal to or greater than 30%; • Maintain a standing vegetative cover that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; • Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or • Comply with a standard of an alternative test method, upon obtaining the written approval from the control officer and the administrator of the environmental protection agency (EPA). • Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this condition, the silt loading standards or stabilizations requirements must also be met. • Rule 316 § 307.1.d includes bladed roads and a sprinkler system in a menu of options. Augmentation prohibiting visible emissions beyond the fenceline is more stringent than stockpile height limit and offers sources flexibility to

Table 4.3.4.10 Maricopa County Rule 310: STOCKPILES		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
(EPA). • Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this condition, the silt loading standards or stabilizations requirements must also be met.		comply with opacity limit. • • Raw material and product stockpiles at new facilities shall be located at least 25 feet from the property line. New stockpiles at existing facilities are limited to this setback if determined to be feasible on a case-by-case basis through the Dust Control Plan by assessing the amount of open land available at the property before the new stockpiles are formed. • • Raw material and product stockpile heights shall not exceed 45 feet.
----	No visible emissions beyond property line: A person shall not cause or allow the emissions of fugitive dust from any active operation, open stockpile, or disturbed surface area such that the presence of such dist remains visible in the atmosphere beyond the property line of the emission source. Exemption for wind gusts exceeding 25 mph, if high wind control measures are implemented. Pima County Code §17.16.050.D	No visible emissions beyond property line: A person shall not cause or allow the emissions of fugitive dust from any active operation, open stockpile, or disturbed surface area such that the presence of such dist remains visible in the atmosphere beyond the property line of the emission source. Exemption for wind gusts exceeding 25 mph, if high wind control measures are implemented, and for activities unrelated to the permitted facility.
----	Stabilize surface soils where support equipment and vehicles will operate by pre-watering and maintaining surface soils in a stabilized condition; or by applying and maintaining a dust palliative on surface soils. Pima County Code §17.16.050.D	Stabilize surface soils where suppo

Additional BACM And MSM Not Recommended for Consideration

Of the BACM and MSM measures that have been benchmarked, these additional measures have been considered but are not recommended for inclusion in Rule 316 as they are either duplicative of other measures that are being proposed for adoption into Rule 316, or they are as stringent, or less stringent than other measures that have been proposed for adoption into Rule 316.

Active Stockpile Activities.

- ✓ *Clark County Construction Activities Dust Control handbook – Stockpiling*

Other Stockpile Activities.

- ✓ *Modeled Concentration Based Rules. TCEQ, Rule § 111.155 Ground Level Concentrations*
- ✓ *Stockpile Height Limitations. TCEQ - Air Quality Standard Permit for Hot Mix Asphalt Plants Effective Date July 10, 2003*

Unpaved Haul and Access Roads

Background

Vehicular travel on and windblown emissions from unpaved roads and unpaved parking lots generate significant amounts of fugitive dust and can also lead to trackout of particulate matter onto existing paved roads. These emissions are a result of dust being reentrained into the atmosphere. The sources affected are any non-metallic mineral products processing facility which has unpaved haul and access roads, which includes vehicle traffic on dirt or gravel roads at industrial sites that consists of quarry pit roads, entrance and exit roads, and transfer roads.

Potential Control Measures

The following measures for the control of fugitive dust emissions from unpaved roads were evaluated: dust suppressants, paving, sweeping, watering, wet sweeping, and foaming.

Emission Reductions

The 1997 SCAQMD staff report for Rule 1186 (applicable to unpaved roads within the South Coast Air Basin) includes the following emission reduction percentages for various control options: 94% reduction for paving, 75% reduction for applying chemical stabilizers, and 50% reduction for a 15 mph speed limit.

Based upon the TCEQ general permit application for concrete batch plants, the emissions reduction percentages shown in Table 4.3.4.11 can be achieved for the following controls: 80% reduction for oiling unpaved roads, 85% reduction for application of chemical foam, 90% reduction for paving and sweeping, 95% reduction for paving and watering, 98% reduction for paving and wet sweeping, and 99% reduction for paving and foam application.

Table 4.3.4.11 Emissions Reductions Percentages for Unpaved Haul and Access Roads Control Measures

Emission Point/ Control Measure	PM_{10} Emissions Controllable lb/yr (tons)	PM_{10} Emissions Eliminated lb/yr (tons/yr)	Percent Reduction in Total Industry Emissions	Percent Reduction in Industry Category Emissions
Dust Suppressants (85% Control)	381,706 (190.9)	105,160(52.6)	15.8%	27.5%
Pave 50% of all unpaved roads at facilities with pits, and 65% of all unpaved roads at facilities without pits. All remaining unpaved roads would be watered (assumed 70% control), and the following maintenance will be applied to the newly paved roads.				
Sweeping (90% control)	381,706 (190.9)	80,219 (40.1)	12.1%	21.0%
Watering (95% control)	381,706 (190.9)	98,672 (49.3)	14.8%	25.9%
Wet Sweeping (98%	381,706 (190.9)	109,743 (54.9)	16.5%	28.8%

Table 4.3.4.11 Emissions Reductions Percentages for Unpaved Haul and Access Roads Control Measures				
Emission Point/ Control Measure	**PM_{10} Emissions Controllable lb/yr (tons)**	**PM_{10} Emissions Eliminated lb/yr (tons/yr)**	**Percent Reduction in Total Industry Emissions**	**Percent Reduction in Industry Category Emissions**
control)				
Foaming (99% control)	381,706 (190.9)	113,434 (56.7)	17.1%	29.7%
Pave 50% of all unpaved roads at facilities with pits, and 65% of all unpaved roads at facilities without pits. All remaining unpaved roads would be controlled by dust suppressants (assumed 85% control), and the following maintenance will be applied to the newly paved roads.				
Sweeping (90% control)	381,706 (190.9)	123,614 (61.8)	18.6%	32.4%
Watering (95% control)	381,706 (190.9)	142,066 (71.0)	21.4%	37.2%
Wet Sweeping (98% control)	381,706 (190.9)	153,138 (76.6)	23.0%	40.1%
Foaming (99% control)	381,706 (190.9)	156,829 (78.4)	23.6%	41.1%

Technical Feasibility

There are four types of haul roads typically found at a facility: main entry/exit loop, major material haul roads, minor material haul roads, and pit roads. Minor material haul roads and pit roads are not feasible to pave because they are constantly changing. The facilities with haul roads can be divided into two groups, those facilities with open pits and those facilities without open pits. It has been conservatively assumed that sources with open pits can feasibly pave only 50% of their haul roads while sources without open pits can feasibly pave 65% of their haul roads. It is assumed that all entry/exit loops for both defined facilities can be paved.

Auxiliary Advantages/Disadvantages

Advantages. Paving is a permanent control measure that is performed one time and does not require daily maintenance. It allows for less trackout from the facility and allows the facility to ensure compliance

Disadvantages. Chemical foams can have a negative affect on vegetation and wildlife. Paving introduces oils to the soil.

Cost-Effectiveness

Costs for unpaved road treatment were estimated in the 1997 SCAQMD Rule 1186 staff report to be $350,000 per mile of paved road, $16,107 per mile using chemical stabilizers, $800 total per mile for speed limit reduction based upon $200 per sign and 4 signs per mile.

The overall cost-effectiveness of SCAQMD Rule 1186 unpaved road treatment requirements was estimated at $958 per ton of PM_{10} reduction.

BACM/MSM Analysis

Table 4.3.4.12 outlines current control measures, benchmarked control measures, and additional recommended control measures for unpaved haul and access roads. Currently, MCESD Rule 310 regulates all unpaved haul/access roads at industrial and construction sources; however, these recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of 310 that are

currently applicable to this source category will remain applicable to this source category unless a more stringent measure is identified.

BACM and MSM Not Recommended for Consideration

Of the BACM and MSM measures that have been benchmarked, these additional measures have been considered but are not proposed for inclusion in Rule 316 as they are either duplicative of other measures that are being proposed for adoption into Rule 316, or they are as stringent, or less stringent than other measures that have been proposed for adoption into Rule 316.

Vehicular Speed Limit:

- ✓ *Clark County, Nevada - AQR 94 and Construction Activities Dust Control Handbook*

Control of Unpaved Haul and Access Roads:

- ✓ *TCEQ Concrete Batch Plant Technical Guidelines for Mechanical Sources*
- ✓ *TCEQ Air Quality Standard Permit for Temporary Rock Crushers*
- ✓ *TCEQ February 2002, standard permit for rock crushing plants, BACT Analysis*
- ✓ *TCEQ Air Quality Standard Permit for Hot Mix Asphalt Plants Effective Date July 10, 2003*
- ✓ *TAC §111.147. Roads, Streets, and Alleys*
- ✓ *TCEQ Air Quality Standard Permit for Concrete Batch Plants, Effective July 10, 200*3

The following table outlines current control measures, benchmarked control measures, and additional recommended controls measures for unpaved haul and access roads. Currently, Maricopa County Rule 310 regulates all industrial sources and construction sources; however these recommended changes are additional control measures that are proposed as MSM for Maricopa County Rule 316. *Because Rule 310 already applies to emissions from this source category*, the intent is only to augment and supplement those controls that already exist. All portions of 310 that are currently applicable to this source category (including test methods, monitoring, recordkeeping and reporting) and will remain applicable to this source category unless a more stringent measure has been identified.

Table 4.3.4.12 Maricopa County Rule 310: Unpaved Haul And Access Roads		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
Applies to owner/operator of any unpaved haul/access road	-----	Applies to owner/operator of any unpaved haul/access road
No visible dust emissions from unpaved Haul/Access Roads which exceed 20% opacity and not allowing a silt loading equal to or greater than 0.33 ounce per square foot.	None	No visible dust emissions from unpaved Haul/Access Roads which exceed 20% opacity and not allowing a silt loading equal to or greater than 0.33 ounce per square foot.
As an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day and limit vehicle speeds to no more than 15 miles per hour.	Reduce Speed Limit from 15 to 10 mph	As an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day and limit vehicle speeds to no more than 10 miles per hour. TCEQ's requirement for surface stabilization is in its permit by rule, not applicable to individual source permits where case-by-case conditions are examined. ADEQ's alternative is equivalent.
Implement one or more control measure(s) before engaging in the use of or in the maintenance of unpaved haul/access roads: • Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day (total for all unpaved haul/access roads); • Apply water so that the surface is visibly moist and opacity limitation and silt loading requirement described above is met; • Pave; • Apply and maintain gravel, recycled asphalt, or other suitable material ensuring compliance with opacity limitation and silt loading requirement described above.; or • Apply a suitable dust suppressant ensuring compliance with opacity limitation and silt loading requirement described above.	None Use of bumps, humps, or dips for speed control TCEQ – Requirements for Concrete Batch Plant Roads Located no less than 25 feet from property line, except for entrance and exit to the site.	• Implement one or more control measure(s) before engaging in the use of, or in the maintenance of, unpaved haul/access roads: o Control Requirements o Work Practice Standards o Use bumps, humps, or dips for speed control; and Limit vehicle speed to 10 miles per hour or less; and Limit vehicle trips to no more than 20 per day; or o Apply water so that the surface is visibly moist and that opacity and silt loading limitations described in this requirement are met; or o Pave; or o Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Maricopa County Rule 310 § 302.2; or o Apply a suitable dust suppressant, in compliance with Maricopa County Rule 310, § 302.2 (and restated in Rule 310, Table 3). • Set Back Requirements:

Table 4.3.4.12 Maricopa County Rule 310: Unpaved Haul And Access Roads		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
		• Require all new facilities to locate unpaved roads no less than 25 feet from property line, except for entrance and exit to the site.
The owner and/or operator of a dust generating operation shall do all of the following: • Install, maintain and use a suitable trackout control device (examples of trackout control devices are described in Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such operation at all exits onto paved areas accessible to the public. o All work sites with a disturbed surface area of two acres or larger, and o All work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day. • Clean up, trackout, carry-out, spillage, and/or erosion, on the following time-schedule: o Immediately, when trackout, carry-out, or spillage extends a cumulative distance of 50 linear feet or more; and o At the end of the workday, for all other trackout, carry-out, spillage, and/or erosion.	SCAQMD - Use of trackout controls such as wheel washers, rumble grates, or an equivalent trackout device. Use of trackout controls should consider the stabilization of the roads and unpaved shoulders that off-site traffic must cross in order to enter the facility.	The owner and/or operator of a dust generating operation shall do all of the following: • Install, maintain and use a wheel washing system, rumble grate or other equivalent trackout control device (examples of other possible trackout control devices are described in Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such operation at all exits onto paved areas accessible to the public. • The appropriate trackout controls shall be determined after considering the stabilization of the roads and any unpaved shoulders that off-site traffic must cross in order to enter and exit the facility, and shall be deemed acceptable through an approvable dust control plan. • Clean up, trackout, carry-out, spillage, and/or erosion, on the following time-schedule: o Rule 316 § 307.6.d. prohibits trackout, carry-out, or spillage that extends a cumulative distance of 25 linear feet or more from all facility exits; and o At the end of the workday, for all other trackout, carry-out, spillage, and/or erosion requires clean up.
----	**Entrance and Exit Roads –** Require all entry and exit roads and main traffic routes associated with the operation to be paved with a cohesive hard surface that is maintained	Require all entry and exit roads and main traffic routes associated with the operation to be paved with a cohesive hard surface that is maintained intact and cleaned, or controlled through the use of 1" rock,

Table 4.3.4.12 Maricopa County Rule 310: Unpaved Haul And Access Roads		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
	intact and cleaned (exceptions from paving for temporary plants – 180 day or less)	or recycled asphalt when paving is determined to be technically or legally infeasible, as approved in dust control plan. For example, if a permitted source leases property paving may not be authorized. A steeply graded road or a road that traverses a wash may not be paved. (There may be exceptions from paving for temporary plants – 180 day or less).
----	**Delivery and Batch Truck Operations –** Require all batch trucks and material delivery trucks to remain on paved surfaces when entering, conducting primary function, and leaving the property.	Require all batch trucks and material delivery trucks to remain on controlled surfaces when entering, conducting primary function, and leaving the property, as approved in a dust control plan.
----	**Dust Emissions from In-Plant Roads and Traffic –** Minimize dust emissions from all other in-plant roads and traffic areas at all times by at least one of the following methods: (i) Cover with a material such as, but not limited to, roofing shingles or tire chips (when used in combination with (ii) or (iii) of this subsection); (ii) Treat with dust suppressant chemicals; (iii)Water; or (iv) Pave with a cohesive hard surface that is maintained intact and cleaned.	Minimize dust emissions from all other in-plant roads and traffic areas at all times by at least one of the following methods: (i) Cover with a material such as, but not limited to, roofing shingles or tire chips (when used in combination with (ii) or (iii) of this subsection; (ii) Treat with dust suppressant chemicals; (iii) Water; or (iv) Pave with a cohesive hard surface that is maintained intact and cleaned.
----	**Stabilization Requirements for Unpaved Areas –** Stabilize surface soils where loaders, support equipment and vehicles will operate by prewatering and maintaining surface soils in a stabilized condition; or by applying and maintaining a dust palliative on surface soils	Stabilize surface soils where loaders, support equipment and vehicles will operate by prewatering and maintaining surface soils in a stabilized condition; or by applying and maintaining a dust palliative on surface soils.
---	**No Visible Emissions at the Fence Line -** No person shall cause, suffer, allow, or permit diffusion of visible emissions, including fugitive	No person shall cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become

Table 4.3.4.12 Maricopa County Rule 310: Unpaved Haul And Access Roads		
Current Rule 310 Controls	**Benchmarked Controls**	**Recommended Augmentations to Rule 316**
	dust, beyond the property boundary line within which the emissions become airborne, without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.	airborne, without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.

Opacity Limitation:

SJV Air Pollution Control District Rule 8071 Unpaved Vehicle/Equipment Traffic Areas

Fugitive Emissions From Concrete Batching Operations:

Florida Administrative Code 62-296.414 Concrete Batching Plants

Selected Control Measures for Unpaved Haul and Access Roads

Currently, MCESD Rule 310 regulates all unpaved haul/access roads at industrial and construction sources; however, below are additional control measures that are proposed as MSM for MCESD Rule 316. Augmentation of Rule 316 to include the portions of Rule 310 that are relevant to unpaved haul and access roads has been selected as a control measure. The following are additional selected control measures:

Entrance and Exit Roads. Require all entry and exit roads and main traffic routes associated with an operation to be paved with a cohesive hard surface that is maintained intact and cleaned except when it is determined to be technically infeasible or unreasonable. The determination of infeasibility or unreasonableness will consider the stabilization of roads and shoulders leading to the access point and will be made as part of a dust control plan.

Dust Emissions from In-Plant Roads and Traffic. Truck traffic that enters and exits a facility will remain on controlled surfaces. Controls include paving, dust suppressants, or watered roads consistent with an approved dust control plan. No visible dust emissions from unpaved roads that exceed 20% opacity. Silt loading equal to or greater than 0.33 ounce per square foot is prohibited.

Stabilization Requirements for Unpaved Areas. Surface soils where loaders, support equipment and other vehicles will operate will be stabilized by applying water or dust suppressants. As an alternative, vehicle trips can be limited to no more than 20 per day and vehicle speeds to no more than 10 mph.

Trackout Controls. Install, maintain, and use a wheel washing system, rumble grate, or other equivalent trackout control device that prevents trackout and removes particulate matter from tires and exterior surfaces of haul trucks and/or motor vehicles at all exits onto paved areas accessible to the public. Clean up, trackout, spillage, and/or erosion will be removed: 1) immediately when spillage extends a cumulative distance of 50 linear feet or more or 2) at the end of the work day, for all other trackout.

Minimum Distance from Fence Line. Unpaved roads at new facilities are required to be located no fewer than 25 feet from the property line, except for entrance and exit to the site.

No Visible Emissions at the Fence Line. No visible emissions are allowed beyond the property boundary line without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions.

Delivery and Batch Truck Operations. All batch trucks and material delivery trucks will remain on controlled surfaces when entering, conducting their primary function, and leaving the property as described in an approved dust control plan.

Control Requirements. Various other controls for unpaved roads including bumps, humps, and dips, limitations on vehicle speed, surface stabilization, opacity and silt loading limitations, and paving as described in Table 4.3.4.12.

Other Industrial Sources

Permitted industrial point (stack) sources in the Salt River SIP Study Area were evaluated for compliance with BACM/MSM. Of all industrial point sources evaluated, control measures on all facilities met BACM/MSM except brick and structural clay product manufacturing and cooling towers. Evaluations of these sources are` described below.

Brick and Structural Clay Product Manufacturing

Background

Brick, and structural clay products manufacturing facilities typically process raw clay and shale, form the processed materials into bricks or shapes, and dry and fire the bricks or shapes. As part of brick and clay products manufacturing, kilns are used for high temperature firing. The most common type of kiln used for firing brick is the tunnel kiln. During the kiln firing, a significant amount of particulate matter emissions is generated.

There are several types of sources that generate particulate matter emissions during the brick and clay products manufacturing process. These sources include, but are not limited to, raw material grinding, screening operations, kiln firing, brick dryers, facility paved roads, unpaved roads, and stockpiles.

BACM/MSM Analysis

Table 4.3.4.13 outlines current control measures, benchmarked control measures, and additional recommended control measures for and brick and structural clay product manufacturing facilities. Currently, MCESD Rule 311 regulates operations that emit particulate matter emissions into the ambient air as a result of processing materials that are not otherwise required to be controlled through MCESD Rules 313, 316, 317, 319, 322, and 323 or other applicable New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP). Because brick and structural clay manufacturers number among those industries unregulated by MCESD particulate rules the intent is to recommend the adoption of a rule regulating emissions from brick and clay manufacturers. MCESD has proposed, and is in the process of developing, Maricopa County Rule 325, which will address brick and clay sources.

The following table outlines current control measures, benchmarked control measures, and additional recommended control measures for brick and structural clay product manufacturing facilities. Currently, Maricopa County Rule 311 regulates operations that emit particulate matter emissions into the ambient air as a result of processing materials that are not otherwise required to be controlled through Maricopa County Rules 313, 316, 317, 319, 322 and 323 or other applicable New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP). Because there is no other applicable requirement to emissions from this

source category, the intent of the document is to recommend the adoption of a new rule regulating emissions from brick and structural clay product manufacturing facilities.

Table 4.3.4.13 BRICK OR STRUCTURAL CLAY PRODUCTS MANUFACTURING Maricopa County Rule 325: Particulate Emissions Not Otherwise Controlled		
Current Maricopa County Rule 311 Controls	**Benchmarked Controls**	**Recommended New Requirements**
• **Process Weight Rates Less Than or Equal to 60,000 Pounds Per Hour:** Determination of the allowable hourly emission rates (E) for process weight rates up to 60,000 lbs/hr shall be accomplished by use of the equation: $E = 3.59\ P^{0.62}$ (P = less than or equal to 30 tons/hr) where: E = Emissions in pounds per hour, and P = Process weight rate in tons per hour. • **Process Weight Rates Greater Than 60,000 Pounds Per Hour:** Determination of the allowable hourly emission rates (E) for process weight rates in excess of 60,000 lbs/hr shall be accomplished by the use of the equation: $E = 17.31\ P^{0.16}$ (P = greater than 30 tons/hr) where "E" and "P" have the same meanings as above.	**40 CFR 63.8405(a) Subpart JJJJJ -** Each existing, new, or reconstructed tunnel kiln at a brick or structural clay product manufacturing facility with a capacity less than 10 tons per hour (tph) of fired product shall not have particulate emissions that exceed 0.42 pounds per ton (lb/ton) of fired product. SCAQMD Rule 1112.1 was reviewed but is not applicable to brick and clay product kilns.	Each existing, new, or reconstructed tunnel kiln at a brick or structural clay product manufacturing facility with a capacity less than 10 tons per hours (tph) of fired product shall not have particulate emissions that exceed 0.42 pounds per ton (lb/ton) of fired product. (Implemented effective 03/09/2005)

Brick and Structural Clay Product Manufacturing Facilities.

Cooling Towers

Background

During the BACM/MSM review on industrial point sources, ADEQ considered the emissions from cooling towers at electrical generating units in order to determine whether additional PM_{10} emissions reductions might be possible. The most commonly accepted controls for PM_{10} emissions from cooling towers include the installation of high efficiency drift eliminators and the control of total dissolved solids (TDS) in the water used in cooling towers.

BACM/MSM Analysis

A review of Maricopa County's existing power plant rule, MCESD Rule 322 § 301.3, determined that electrical generating units inside the non-attainment area are already required to install high efficiency drift eliminators on all cooling towers and to control the TDS concentration in the re-circulated cooling water. In addition, the Arizona Department of Water Resources (ADWR) has established a requirement in the Phoenix Active Management Area Plan for existing cooling towers at electrical generating units to recycle the water used by such towers a minimum of seven times. New cooling towers are required to recycle the water additional times (beyond the seven required for existing cooling towers) or be equipped with a technology that helps reduce the amount of water used by the process (*Third Management Plan for the Phoenix Active Management Area, 2000 – 2010*, Arizona Department of Water Resources, December 1999, pp 6-65 through 6-72).

ADEQ confirmed that high efficiency drift eliminators are, in fact, installed on all electrical generating unit cooling towers in the Salt River SIP Study Area. ADEQ further evaluated the possibility of setting specific, county-wide TDS concentration limits for these facilities that are lower than the maximum 12,000 TDS allowed by the Arizona Pollutant Discharge Elimination System (AZPDES) Arizona Administrative Code, Title 18, Chapter 9, Article 9. These facilities, however, have been designed to meet the 12,000 TDS maximum and are unable from an engineering standpoint to operate at a significantly lower TDS level.

Because the electrical generating units inside the non-attainment area have installed high efficiency drift eliminators on all cooling towers, because they are meeting ADWR and AZPDES requirements, and because lowering TDS concentration limits is technically, legally, and/or economically infeasible, these facilities are already meeting BACM/MSM requirements.

4.3.5 ON-ROAD MOBILE SOURCE CONTROL MEASURES

Paved Roads

Background

The most significant sources of PM_{10} emissions in the Salt River Study Area related to paved roads are dust loading from windblown emissions, soil trackout and emissions from earth moving and other dust generating processes in areas of high industrial, construction, and agricultural activity. Dust loading is, essentially, the amount of particulate matter deposited on roadways and available for reentrainment That fraction of the dirt and dust on the pavement smaller than 75 microns is called the silt loading, which is the particulate matter available for reentrainment. This fine particulate matter becomes reentrained to the atmosphere as a result of vehicular traffic. It is not

possible, however, to prevent only the silt from being deposited on the roadway without the rest of the particulate materials.

Trackout refers to material deposited on primary and secondary roads as a result of vehicles traveling over disturbed soils; accumulating mud, dirt, and debris on their tires and other exterior surfaces; and subsequently entering and traveling upon paved roads. Once soil has been tracked out of the original disturbed soil area and onto paved roads, vehicles repeatedly traveling over the affected area suspend the soil as fine particles of particulate matter or dust, much of which becomes suspended in the atmosphere.

Selected Control Measures

The potential control measures to address the problems of silt loading and trackout on paved roads are enhanced enforcement of MCESD Rules 310 and 316 and implementation of agency- and political subdivision-specific control measures for dust emissions from targeted paved roads in the Salt River Study Area and the Maricopa County PM_{10} Nonattainment Area.

Enhanced Enforcement of Rules 310 and 316. Because most heavy silt loading and trackout on roadways is a result of industrial, construction, and agricultural activities, enhanced enforcement of MCESD Rule 310 pertaining to fugitive dust and augmentation of MCESD Rule 316 pertaining to industrial sources are proposed as control measures. For Rule 316 specifically, potential augmentations require the installation, maintenance, and use of a wheel washing system, rumble grate, or equivalent trackout control device that removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse the operation at all exits onto paved areas.

Additionally, Rule 316 will be augmented to include requirements for cleanup of trackout, carry-out, spillage, and/or erosion to occur: 1) immediately if the trackout extends a cumulative distance of 25 linear feet or more or 2) at the end of the work day for all other trackout. The recommended augmentations for trackout/carryout are further described in Table 4.3.4.12 which addresses unpaved haul and access roads.

Currently, Rule 310 regulates dust-generating operations; however, the recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of Rule 310 that are currently applicable to this source category will remain applicable to this source category.

Control Measure for Reentrained Dust Emissions from Targeted Paved Roads. In addition to enhanced enforcement of MCESD 310 and augmentation of MCESD Rule 316, control measures will be developed that address dust emissions from paved roads that typically experience a high level of soil and dust deposition. A protocol for identifying these arterial and collector roadway segments will be developed and implemented by the Arizona Department of Transportation and Maricopa County, and cities, and towns. Each agency and political subdivision shall develop its own protocol for implementation. The protocol shall:

- Identify targeted arterial and collector roadways and assign sweeping frequencies with PM_{10}-efficient sweepers (or conventional sweepers if only these are available) or other control measures that would reduce the dust loading for each roadway;

- Describe how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM_{10} for the Maricopa County Nonattainment Area (February 2000);

- Address trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and

- Provide for the periodic reevaluation of the protocol. The reevaluation shall be conducted annually unless the protocol includes a justification for a different frequency.

In developing the protocol, jurisdictions shall consider activities and conditions that exist in that jurisdiction that contribute to PM_{10} loading. Examples of factors that may be considered include: land use, overall traffic volume, heavy duty truck traffic, unpaved shoulders, and others. The protocol shall be sent to MCESD and ADEQ no later than September 30, 2004 and implemented no later than February 2, 2005. Reevaluations shall be prepared in writing and submitted to MCESD and ADEQ, and shall include a revised protocol, if appropriate.

Unpaved Shoulders

Road shoulders have multiple functions including accommodating stopped vehicles, providing support to the edge of the traveled portion of the roadway, protecting the road structure from water and erosion, and facilitating access by emergency vehicles. If road shoulders are not paved or otherwise treated to suppress dust, high-profile vehicle traffic can generate a significant amount of PM_{10} from pavement and unpaved shoulders.

To address this issue, the *Revised MAG 1999 Serious Area Particulate Plan for PM_{10} for the Maricopa County Nonattainment* Area (February 2000) included in the committed measures a measure titled, "Reduce Particulate Matter Emissions from Unpaved Shoulders on Targeted Arterials." Because unpaved shoulders are a significant source category in the Salt River SIP Study Area, the control measure commitments in the MAG Plan will continue to be relied upon in achieving attainment. These committed measures are shown in Appendix E.

4.3.6 SUMMARY OF SELECTED CONTROL MEASURES

Windblown Construction

The selected control measure for dust from windblown construction is better enforcement of MCESD Rule 310 pertaining to the control of fugitive dust. The measures available under Rule 310 to control windblown dust emissions from disturbed areas include opacity restrictions, the use of water or dust suppressants, and the installation of wind barriers. Temporary measures during weekends, after work hours, on holidays or during high wind events include applying water, dust suppressants, or gravel and restricting vehicular access.

A critical aspect of strengthening enforcement of the Rule 310 control measures as well as the control measures in Rules 310.01 and 316 is the hiring of additional inspectors to support the

enforcement program. An additional 25-30 inspectors may be needed to provide adequate enforcement.

Windblown - Open Areas, Vacant Lots, and Alluvial Channel

The selected control measure for windblown dust from open areas and vacant lots is better enforcement of MCESD Rule 310.01 pertaining to the control of fugitive dust. Current control options include establishing/restoring vegetative cover, applying gravel, river rock, broken concrete, or dust suppressants, creating barriers to trespassing, and establishing wind breaks. A recommended augmentation to Rule 310.01 is the addition of wind breaks as a control measure. The most significant control method appears to be the application of barriers to prevent vehicular trespassing that, if not prevented, results in the destruction of vegetative ground cover and soil stabilization. As described above, a critical aspect of strengthening enforcement of Rule 310.01 is hiring additional inspectors.

Windblown – Agricultural

The selected control measures to minimize windblown PM_{10} emissions from agricultural fields are the Agricultural BMPs described above and as specified in the Agricultural PM_{10} General Permit for the Maricopa County PM_{10} Nonattainment Area and codified in Arizona Administrative Code (AAC) R18-2-611. A commercial farmer is required to implement at least one BMP from each of the three agricultural categories: tillage and harvest, non-cropland, and cropland. AAC R18-2-611 is considered BACM/MSM for the windblown agricultural emissions source category.

Non-Metallic Mineral Processing

Currently, MCESD Rule 316 regulates this source category. MCESD Rule 316 is modeled after the New Source Performance Standard (NSPS), 40 CFR 60 Subpart OOO titled, "Standards of Performance for Nonmetallic Mineral Processing Plants." The recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Augmentation of Rule 316 to include the portions of Rule 310 that are relevant to non-metallic mineral product processing is a selected control measure in addition to the following measures:

Crushing And Screening Plants

No Visible Emissions Standard. No visible fugitive emissions shall leave the property from the crusher, associated sources, and in-plant roads associated only with the facility. This rule applies only to onsite operations.

Permanently Mounted Watering Systems. Permanently mounted spray bars are required at the inlet and outlet of all crushers, all shaker screens, and at all material transfer points.

Side Covers for Screens.

Concrete Batch Plants

Cement Silo Baghouse, Fabric Filter or Cartridge Filter Requirement. New baghouses are required to be designed to meet a 0.01 gr/dscf standard.

Cement Silo Filling Requirements. A control system that shuts off the cement silo filling process if pressure from the delivery truck reaches excessive levels.

Cement Silo Overfill Warning System. An audible or visual system is required.

Spilled Material Work Practice Standard. Spilled material must be immediately removed or controlled by water or another suppressant.

Batch Mix Feed Controls. Dust emissions at the batch mixer feed shall be controlled by a spray device, rubber fill tubes, a baghouse capture and delivery system, or by conducting the entire mixing operation inside an enclosed process building such that no visible emissions from the building occur during mixing activities.

Asphalt Batch Plants

Baghouse Controls for Drum Dryers. A baghouse is required on the drum dryer and silos with an opacity limit of not greater than 5% over a six-minute period.

Opacity Requirement. The opacity requirement for non-rubberized asphalt plants is 5 percent.

Filler Silo Overfill Warning System. An audible or visual overfill warning system is required for lime and other filler silos to alert operators in sufficient time prior to the silo reaching capacity.

A complete listing of potential Rule 316 augmentations is included in Tables 4.3.4.7 – 4.3.4.9.

Windblown Cleared Areas - Industrial

If a nonmetallic mineral product mining and processing facility does not have an earthmoving permit, the potential control measure for the areas subject to wind erosion is augmentation and better enforcement of MCESD Rule 316 for industrial sources. Currently, MCESD Rule 310 regulates all dust generating operations; however, the following recommended change is an additional control measure that is proposed as MSM for MCESD Rule 316:

> Stabilize surface soils where loaders, support equipment, and vehicles will operate by prewatering and maintaining surface soils in a stabilized condition, or by applying and maintaining a dust palliative on surface soils.

Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of 310 that are currently applicable to this source category will remain applicable to this source category unless a more stringent measure is identified.

If an industrial facility has an earthmoving permit, the potential control measure for the areas subject to wind erosion is better enforcement of MCESD Rule 310 pertaining to the control of fugitive dust. A critical aspect of strengthening enforcement of the Rule 310 control measures is hiring 25-30 additional inspectors for the entire program (this includes resources for the enforcement of Rule 316 pertaining to industrial sources). See Resolution in SIP Appendix D.

The methods available under Rule 310 to control windblown dust emissions from disturbed areas include opacity restrictions, the use of water or dust suppressants, and the installation of wind barriers. Temporary measures to be implemented during weekends, after work hours, on holidays or high wind events include applying water, dust suppressants, or gravel, and restricting vehicular access.

Stockpiles

The selected control measures for stockpile emissions are augmentation of Rule 316 to include the portions of Rule 310 that are relevant to stockpile and material handling emissions. The following control measures are also selected:

> *No visible emissions beyond property line.* A person shall not cause or allow the emissions of fugitive dust from any active operation, open stockpile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. There is an exemption for wind gusts exceeding 25 mph, if high wind control measures are implemented. High wind control measures for open stockpiles include applying water twice per hour and installing temporary covering.
>
> *Surface Stabilization*. Stabilize surface soils where loaders, support equipment, and other vehicles will operate by pre-watering and maintaining surface soils in a stabilized condition; or by applying and maintaining a dust palliative on surface soils.
>
> *Distance from fence line and height limitations.* Stockpiles at new pits must be located a minimum distance from the fence line. Stockpiles with less than a 5 percent silt content are limited to 45 feet in height.

A complete listing of proposed Rule 316 augmentations for stockpiles is included in Table 4.3.4.10.

Unpaved Haul and Access Roads

Augmentation of Rule 316 to include the portions of Rule 310 that are relevant to unpaved haul and access roads has been selected as a control measure.

The following are additional selected control measures:

> *Entrance and Exit Roads.* Require all entry and exit roads and main traffic routes associated with an operation to be paved with a cohesive hard surface that is maintained intact and cleaned except when it is determined to be technically infeasible or unreasonable. The determination of infeasibility or unreasonableness will consider the stabilization of roads and shoulders leading to the access point and will be made as part of a dust control plan.
>
> *Dust Emissions from In-Plant Roads and Traffic.* Truck traffic that enters and exits a facility will remain on controlled surfaces. Controls include paving, dust suppressants, or watered roads consistent with an approved dust control plan. No visible dust emissions from unpaved roads that exceed 20% opacity. Silt loading equal to or greater than 0.33 ounce per square foot is prohibited.
>
> *Stabilization Requirements for Unpaved Areas.* Surface soils where loaders, support equipment and other vehicles will operate will be stabilized by applying water or dust

suppressants. As an alternative, vehicle trips can be limited to no more than 20 per day and vehicle speeds to no more than 10 mph.

Trackout Controls. Install, maintain, and use a wheel washing system, rumble grate, or other equivalent trackout control device that prevents trackout and removes particulate matter from tires and exterior surfaces of haul trucks and/or motor vehicles at all exits onto paved areas accessible to the public. Clean up, trackout, spillage, and/or erosion will be removed: 1) immediately when spillage extends a cumulative distance of 50 linear feet or more or 2) at the end of the work day, for all other trackout.

Minimum Distance from Fence Line. Unpaved roads at new facilities are required to located no less than 25 feet from the property line, except for entrance and exit to the site.

No Visible Emissions at the Fence Line. No visible emissions are allowed beyond the property boundary line without taking reasonably necessary and feasible precautions to control generation of airborne particulate matter. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions.

Delivery and Batch Truck Operations. All batch trucks and material delivery trucks will remain on controlled surfaces when entering, conducting their primary function, and leaving the property as described in an approved dust control plan.

Control Requirements. Various other controls for unpaved roads including bumps, humps, and dips, limitations on vehicle speed, surface stabilization, opacity and silt loading limitations, and paving as described in Table 4.3.4.12.

Brick and Structural Clay Product Manufacturing

Currently, MCESD Rule 311 regulates operations that emit particulate matter emissions into the ambient air as a result of processing materials that are not otherwise required to be controlled through MCESD Rules 313, 316, 317, 319, 322, and 323, or other applicable New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP). Because there is no other applicable requirement to emissions from this source category, the intent is to recommend the adoption of a new rule regulating emissions from brick and structural clay product manufacturing facilities.

Specific recommendations include: each tunnel kiln at brick and structural clay manufacturing facilities shall not have particulate matter emissions that exceed 0.42 pound per ton of fired product, and 2) tunnel kilns at brick or structural clay product manufacturing facilities with a capacity < 10 tons/hr of fired product shall not have particulate matter emissions that exceed 0.42 lb/ton of fired product.

Paved Roads

The potential control measures to address the problems of dust loading and trackout on paved roads are enhanced enforcement of MCESD Rules 310 and 316 and implementation of agency- and political subdivision-specific control measures for dust emissions from targeted paved roads in the both the Salt River PM_{10} Study Area and the Maricopa County PM_{10} Nonattainment Area..

Enhanced Enforcement of Rules 310 and 316. Because most heavy silt loading and trackout on roadways is a result of industrial, construction, and agricultural activities, enhanced enforcement of MCESD Rule 310 pertaining to fugitive dust and augmentation of MCESD Rule 316 pertaining to industrial sources are proposed as control measures. For Rule 316 specifically, augmentations requiring the installation, maintenance, and use of a wheel washing system, rumble grate, or equivalent trackout control device that removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse the operation at all exits onto paved areas.

Additionally, Rule 316 would be augmented to include requirements for cleanup of trackout, carry-out, spillage, and/or erosion to occur: 1) immediately if the trackout extends a cumulative distance of 50 linear feet or more or 2) at the end of the work day for all other trackout. The recommended augmentations for trackout/carryout are further described in Table 4.3.4.12 which addresses unpaved haul and access roads.

Currently, Rule 310 regulates dust-generating operations; however, the recommended changes are additional control measures that are proposed as MSM for MCESD Rule 316. Because Rule 310 already applies to emissions from this source category, the intent is only to augment and supplement those controls that already exist. All portions of Rule 310 that are currently applicable to this source category will remain applicable to this source category unless a more stringent measure is identified.

Control Measure for Reentrained Dust Emissions from Targeted Paved Roads. In addition to enhanced enforcement of MCESD 310 and augmentation of MCESD Rule 316, control measures will be developed that address dust emissions from paved roads that typically experience a high level of soil and dust deposition. A protocol for identifying these arterial and collector roadway segments will be developed and implemented by the Arizona Department of Transportation and Maricopa County, and cities, and towns. Each agency and political subdivision shall develop its own protocol for implementation. The protocol shall:

- Identify targeted arterial and collector roadways and assign sweeping frequencies with PM_{10}-efficient sweepers (or conventional sweepers if only these are available) or other control measures that would reduce the dust loading for each roadway;

- Describe how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM_{10} for the Maricopa County Nonattainment Area (February 2000);

- Address trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and

- Provide for the periodic reevaluation of the protocol. The reevaluation shall be conducted annually unless the protocol includes a justification for a different frequency.

In developing the protocol, jurisdictions shall consider activities and conditions that exist in that jurisdiction that contribute to PM_{10} loading. Examples of factors that may be considered include: land use, overall traffic volume, heavy duty truck traffic, unpaved shoulders, and others. The protocol shall be sent to MCESD and ADEQ no later than September 30, 2004

and implemented no later than February 2, 2005. Reevaluations shall be prepared in writing and submitted to MCESD and ADEQ, and shall include a revised protocol, if appropriate.

Unpaved Shoulders

The *Revised MAG 1999 Serious Area Particulate Plan for PM_{10} for the Maricopa County Nonattainment* Area (February 2000) included in the committed measures a measure titled, "Reduce Particulate Matter Emissions from Unpaved Shoulders on Targeted Arterials." Because unpaved shoulders are a significant source category in the Salt River SIP Study Area, the control measure commitments in the MAG Plan will continue to be relied upon in achieving attainment. These committed measures are shown in Appendix E of this plan.

4.3.7 BACM AND MSM IMPLEMENTATION SCHEDULE

The Salt River PM_{10} SIP will be finalized after the public participation process and submitted to the US EPA prior to August 2, 2004. As a result, all committed control measures must be implemented by February 2, 2005.

The planned MCESD rulemaking schedule is as follows:

June 04, 2004	Docket opening for MCESD Rule 310.01, *Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots, and Unpaved Roadways,* and Rule 316, *Non-Metallic Mineral Mining and Processing.*
July 1, 2004	First stakeholder workshop for Rule 316.
July 8, 2004	First stakeholder workshop for Rule 310.01.
August 5, 2004	Second pubic workshop for Rule 316.
August 12, 2004	Second public workshop for Rule 310.01; and First public workshop for proposed new Rule 325, *Brick Manufacturing*
September 23, 2004	Second public workshop for proposed new Rule 325
November 4, 2004	MCESD oral proceeding to set public hearing dates for adoption of proposed revisions to Rules 310.01 and 316
December 9, 2004	MCESD oral proceeding to set public hearing date for adoption of proposed new Rule 325
February 16, 2005	MCESD Board of Supervisors public hearing to adopt proposed revisions to Rules 310.01 and 316
March 2, 2005	MCESD Board of Supervisors public hearing to adopt proposed new Rule 325
April 2005	MCESD implements controls that do not require capital expenditures or contract or bid amendments.

August 2005 – February 2006	MCESD implements controls that require capital expenditures.

The City of Phoenix Agenda for the adoption of SIP commitments and allocation of funds is included as Item #95 on the Agenda in Resolution 20114, *Commitment to Implement Dust Control Measures* citywide. At their regular council meeting on June 16, the City of Phoenix will consider Resolution 20114, which is summarized below:

> Resolution 20114 stating the City's intent to implement measures to reduce air pollution.
>
> This Resolution is committing the City to implement measures to reduce dust from paved streets and City-owned properties in the Salt River and similar areas.
>
> Funding to support these measures was submitted for Council approval on June 8, 2004. Because the Resolution will become a legally binding commitment in the Arizona State Implementation Plan for air quality, only a portion of the total program budget has been included in the Resolution.

The Resolution includes:

Targeted street sweeping and other dust control measures for paved roads that will initially be focused within an area bounded by Van Buren, Baseline, 10th Street, and 51st Avenues. The program may be implemented in other areas as needed.
Dust control measures on undeveloped City-owned land will initially be focused in the Salt River bed between 35th and 51st Avenues. The measures may be implemented in other areas of the City, if necessary. Dust controls may include installation of signs, increased police enforcement of trespass laws, installation and maintenance of fencing, berms, or other barriers to restrict property access, removal of trash, stabilization of disturbed soils, and other measures.
Dust mitigation project on 43rd Avenue between Lower Buckeye Road and the riverbed, based upon final approval of federal funds available through Maricopa Association of Governments federal funds. Street improvements will include installation of curb and gutter.

Citizen Notification
No citizen notification is necessary.

Financial Impact
Funding is available in the General Purpose Contingency Fund and the STD Capital Improvement Program.

This item is recommended by Mr. Washington and the Office of Environmental Programs.

The final resolution stamped by the city clerk will be included in the final SIP.

ADOT, Maricopa County, cities, and towns in the Maricopa County PM_{10} Nonattainment Area will each submit a protocol addressing control measures for dust emissions from targeted paved roads by September 30, 2004. Each protocol is required to be implemented by February 2, 2005.

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CHAPTER 5: DEMONSTRATION OF ATTAINMENT OF PM_{10} NATIONAL AMBIENT AIR QUALITY STANDARDS

5.1 OVERVIEW

Given predicted recurrence of the meteorological conditions described for each of the exceedance design days, TSD Chapter 6, "2006 Predicted Concentrations and Controls," demonstrates that attainment can be achieved for the eight exceedances modeled in 2002 in this analysis, assuming the implementation of the enhanced controls identified in Chapter 4 of this SIP.

5.1.1 PROJECTED EMISSION AND AMBIENT AIR QUALITY CHANGES BETWEEN 2002 AND 2006

Chapter 4 of the TSD describes the predicted base case 2006 PM_{10} emissions in considerable detail. In this Chapter, only the additional controls necessary to meet the standard will be discussed. Emission reductions will be forthcoming from enhanced controls to be placed on five kinds of dust-producing activities:

1. Earthmoving and related activities associated with residential and commercial construction;

2. Industrial activity that is chiefly materials handling and transport, with haul roads, pile forming and material transfer being the principal sources;

3. Vehicular traffic on paved roads, principally the reentrained dust that vehicles generate, which can be reduced through increased street sweeping;

4. Trackout onto paved roads from a variety of sources, which adds to the reentrained dust from the nominally clean roads; and

5. Windblown dust from areas such as alluvial surfaces, vacant lots, miscellaneous disturbed areas, industrial stockpiles, and industrial sites.

In addition to emission reductions from these activities, reductions in windblown emissions will also occur through expected changes in land use, in particular, the conversion of agricultural land, vacant lots, and miscellaneous disturbed areas to residential and commercial uses. Each of these activities contributes PM_{10} to the atmosphere throughout the metropolitan area, and within the Salt River PM_{10} Study Area. Each has some effect on the four monitors within the study area, and the emissions inventory and air quality model has quantified their source category contributions.

State Implementation Plan Chapter 3, "PM_{10} Emissions Inventories," Table 3.2 (Table 4-5 of the TSD) identifies the 2002 Salt River PM_{10} emissions inventory source categories and 2002 estimated PM_{10} emissions for each, in metric tons per day. Table 5.1, reflects the projected percentage reduction in emissions from significant source categories in the Salt River Study Area, between 2002 and 2006, due to the effect of enhanced control measures and the conversion of vacant and agricultural land to residential and commercial uses.

TABLE 5.1 Percent Change in Emissions Between 2002 and 2006 Attainment Case		
Emission Category	**Percent Change in Emissions**	**Reason for Change**
AREA SOURCES		
Agricultural Tilling (Land Preparation)	-80%	Agricultural land projected to decrease 80% due to conversion of agricultural land to residential and commercial uses (Maricopa County Farm Bureau, 2003)
Wind Erosion – Agricultural	-80%	Agricultural land projected to decrease 80%, due to conversion of agricultural land to residential and commercial uses (Maricopa County Farm Bureau, 2003)
Wind Erosion – Construction	-19%	MCESD strengthening Maricopa County Rule 310 to increase the rule effectiveness for this category from 63% to 70%.
Wind Erosion – Alluvial	-57%	MCESD applying Maricopa County Rule 310.01 to control this category by 57%, base case 2006 reduction.
WIND EROSION – CLEARED AREAS		
Wind Erosion – Vacant Lots	-36%	MCESD strengthening Maricopa County Rule 310.01 to increase the rule effectiveness for this category from 55% to 71%.
	-39%	Projected building of residential and commercial areas (from Vacant Lot Survey, ADEQ, May 2004, See TSD, Appendix R).
	-61%	Overall reduction of 61%.
Wind Erosion – Miscellaneous Disturbed Areas	-36%	MCESD strengthening Maricopa County Rule 310.01 to increase the rule effectiveness for this category from 55% to 71%.
	-13.6%	Projected building of residential and commercial areas (from County-wide conversion rate).
	-45%	Overall reduction of 45%.
NONROAD MOBILE SOURCES		
Construction Activity	-36%	MCESD strengthening Maricopa County Rule 310 to increase the rule effectiveness for this category from 56% to 72%.
ONROAD MOBILE SOURCES		
PAVED ROADS, UNPAVED SHOULDERS, UNPAVED PARKING LOTS, AND TRACKOUT		
Freeway – Interstate 17, Durango Curve	+6%	Traffic is projected to increase 6%, based on the Maricopa Association of Government's estimate of area traffic increase of 1.5% per year (MAG 2004).
Primary Roads	-7%	The 6% traffic increase is offset by a 13% decrease in reentrained emissions by increasing the sweeping frequency to once a week on dirty sections of one-mile roads.
Secondary Roads	-1%	The 6% traffic increase is offset by a 7% decrease in reentrained emissions by increasing the sweeping frequency to once a week on dirty sections of one-half-mile roads.

TABLE 5.1 Percent Change in Emissions Between 2002 and 2006 Attainment Case		
Emission Category	**Percent Change in Emissions**	**Reason for Change**
UNPAVED ROAD SHOULDERS AND UNPAVED PARKING LOTS		
Unpaved Road Shoulders	-10%	Decrease based on recent shoulder stabilization projects that have been completed since the year 2002.
Unpaved Parking Lots – Reentrained Dust	-36%	MCESD strengthening Rule 310.01 to increase the rule effectiveness for this category from 55% to 71%.
Trackout	-80%	This decrease comes from the increased sweeping frequency of targeted major (mile and one-half-mile) streets and from more effective enforcement of the trackout provisions of Maricopa County Rules 310 and 316.
INDUSTRIAL SOURCES		
Area Sources (Except for stacks and windblown, including process, material handling, haul roads, etc.)	-60%	Improved dust control and housekeeping through enhancements to Maricopa County Rule 316.
Point (or "Stack")	-17%	Installation of air pollution control equipment on a major brick manufacturing facility (proposed, new Maricopa County Rule 325).
Wind Erosion – Industrial Disturbed Surfaces	-75%	From preventive measures to stabilize, water, or tarp the highly-erodible surfaces of facilities on or before high-wind days.
Wind Erosion – Stockpiles, or "Storage Piles"	-55%	From additional watering or tarping of storage piles on high-wind days.

Milestone reports in Appendix E in this SIP include documentation of shoulder stabilization and paving projects. Documentation of the conversion rate of agricultural land to residential and commercial uses appears in Appendix R "Vacant Lot Survey" and page 4-43 of the October 2004 TSD.

5.2 NECESSARY EMISSIONS REDUCTIONS TO MEET THE STANDARD

Eight exceedances that occurred in the Salt River PM_{10} Study Area in 2002 were examined in detail. Each exceedance was compared with the standard and its percentage above the standard calculated.

Two components of PM_{10} concentrations must be considered: background PM_{10} concentrations and the emissions from within the Study Area that contribute directly to PM_{10} concentrations. The Salt River Study Area is a small fraction of the metropolitan total, as are its emissions (3 to 4%). The 'background values,' as the expression is used here, may be defined as those PM_{10} concentrations that would remain in the Salt River PM_{10} Study Area, if all emissions from the Study Area were to cease. The background concentrations result from the emissions of the rest of the metropolitan area, and their resultant transport into the Study Area.

Because emission reductions will take place throughout the Maricopa County PM_{10} Nonattainment Area, the background concentration for the Salt River PM_{10} Study Area will be reduced as well. These background reductions, calculated below, affect the percentage reductions of in-area emissions necessary to meet the standard. The effects are small, because of the size of

metropolitan Phoenix, the distribution of these PM_{10} emissions throughout this area, and their diminishing effects with increasing distance, the background values change very little.

Table 5.2 Salt River PM_{10} Study Area Background Reductions From Area-Wide Controls			
Source Category	**PM_{10} Emissions Tons/Day**	**% Total**	**Background Reduction Percent**
Construction Activity Fugitive Dust	22.85	15.86%	4.53%
Entrainment from Construction Trackout	6.10	4.23%	1.21%
Industrial Processes	2.63	1.83%	0.59%
Process Fugitives	0.42	0.29%	0.09%
Paved Road Dust	56.40	39.14%	11.31%
Agricultural Tillage	5.58	3.87%	1.11%
Windblown	3860	NA	25.27%

Overall background reduction percentages are obtained by applying these percentages to the appropriate portion of the 2002 and 2006 inventories, and calculating the change as a percentage between the two years. This percentage is then applied to the 2002 background concentration to give the 2006 background value. Both sets of background concentrations are given in Table 5.3 (below).

Table 5.3 Salt River PM_{10} Study Area Background PM_{10} Concentrations and their Responses to Anticipated Area-Wide Emission Reductions by 2006 (*Units are $\mu g/m^3$, 24-hour averages*)				
Exceedance Date	**Winds**	**2002**	**2006**	**% Change**
15-Apr-02	High	88	82	6.8
26-Apr-02	High	72	67	6.9
16-Dec-02	Low/Mod	67	66	1.5
8-Jan-02	Low/Mod	68	67	1.5

For a more detailed discussion, refer to Chapter 6 of the October 2004 TSD, “2006 Predicted Concentrations and Controls”, including Section 6.2.2 “Urban Background—The Irreducible Portion” and Appendix M “Emission Density Maps of Background”.

The necessary percentage reductions for exceedance days are high, ranging from approximately 20 to 60 percent, depending on the exceedance (Table 5.4). The emissions reductions percentages necessary to meet the PM_{10} standard are considerably higher than the percentages by which the shown exceedances surpass the standard. The net result is that the standard is roughly twice as difficult to achieve as it would be without the background values. For April 15th, at the West 43rd Avenue monitor (Table 5-4, row two), the exceedance surpasses the standard by 38 percent, but the emission reduction required to meet the standard is 58 percent - 1.6 times the amount by which the standard is exceeded.

Table 5.4 Reductions of Emissions Necessary to Meet the Standard for Eight Salt River PM_{10} Exceedances						
Date	**Site**	**Winds**	**Measured PM_{10} ($\mu g/m^3$)**	**% Above Std**	**2006 Background ($\mu g/m^3$)***	**%Reduction to Meet the Standard**
26-Apr-02	SR	High	249	40	67	54
15-Apr-02	WF	High	243	38	82	58
26-Apr-02	DC	High	232	35	67	50
15-Apr-02	DC	High	198	24	82	41
15-Apr-02	SR	High	184	18	82	33
26-Apr-02	WF	High	174	14	67	22
16-Dec-02	WF	Low/Mod	181	17	66	27
8-Jan-02	SR	Low/Mod	174	14	67	22

5.3 ATTAINMENT AND EMISSION REDUCTIONS

Table 5.5, below, assesses the achievement of attainment for eight exceedances in the Salt River Study Area for 2002. For each of the eight exceedances, the measured concentration is followed by the percentage reduction necessary to achieve the standard. This is followed by the percentage reduction obtained through the additional controls. This percentage includes the adjustment to background concentrations to reflect metropolitan-wide controls. Attainment is shown for all eight, although several exceedances are in attainment by a narrow margin.

5.4 ATTAINING THE PM_{10} STANDARD - CONCLUSIONS

The PM_{10} monitoring record in the Salt River PM_{10} Study Area, which began in 1994, as well as the intensive monitoring work conducted in April – December 2002, clearly demonstrate that this portion of the Salt River air shed has not met the 24-hour National Ambient Air Quality Standard for PM_{10}.

The construction of a complete emissions inventory, the development of a background concentration method, and the application of the most well used, Environmental Protection Agency dispersion model, Industrial Source Complex, have produced the results discussed in Section 6.5.5. of the TSD. These results were presented in the form of realized versus necessary reductions to meet the standard, for each of the eight exceedances recorded during the 2002 intensive study period. The realized reductions -- the predicted 2006 percentage reductions of the model-predicted PM_{10} concentrations from their 2002 concentrations – themselves depend on substantial emission reductions by 2006.

These emission reductions concern earthmoving and related activities; industrial activities, principally materials handling and haul roads; additional street sweeping to reduce reentrained road dust; the reduction of trackout by both sweeping and better regulatory efforts aimed chiefly at the industrial and construction facilities, and the continued retirement of agricultural land in the Salt River area (80% by 2006). Explained in detail in Chapter 4 and supplemented in Table 6-6 and pages 6-20 through 6-22 of the October 2004 TSD, these emission reductions are essential to demonstrate attainment for all eight exceedances by 2006. Implementation of commitments from Maricopa County and the cities and towns within the nonattainment area will identify or have identified rules to be amended, enforcement efforts, and work practices in such a way as to realize

all of these potential emissions reductions. With assertive efforts by these entities and the regulated communities, the emissions reductions can be achieved by 2006.

Table 5.5 Salt River PM_{10} Study Area Exceedances and Attainment Status in 2006						
Date	**Site**	**Winds**	**PM_{10} ($\mu g/m^3$)**	**Reduction %**		**Is the Standard Attained?**
				Needed	**Obtained**	
26-Apr-02	Salt River	High	249	54	58	YES
15-Apr-02	West 43rd		243	58	63	YES
26-Apr-02	Durango		232	50	58	YES
15-Apr-02	Durango		198	41	44	YES
15-Apr-02	Salt River		184	33	54	YES
26-Apr-02	West 43rd		174	22	74	YES
16-Dec-02	West 43rd	Low/Mod	181	27	36	YES
8-Jan-02	Salt River		174	22	41	YES

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CHAPTER 6: DEMONSTRATION OF REASONABLE FURTHER PROGRESS AND CONTINGENCY MEASURES

6.1 OVERVIEW OF ATTAINMENT DEMONSTRATION

Part D of the 1990 Clean Air Act Amendments (CAA), "Plan Requirements for Nonattainment Areas," § 171(1), defines "Reasonable Further Progress" (RFP) as, "…such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date." The modeling results that ADEQ has presented in this plan's Chapter 5, "Demonstration of Attainment of PM_{10} National Ambient Air Quality Standards" for the Salt River Study Area, show that all eight Study Area exceedances would meet the national PM_{10} standards by December 31, 2006, with a recommended, feasible set of control strategies.

6.2 REASONABLE FURTHER PROGRESS

According to the General Preamble (59 FR 41998, at 42015, August 16, 1994), the PM_{10} nonattainment area SIP must include quantitative milestones, based on annual PM_{10} emissions, to be achieved every three years until the area is redesignated attainment, and which demonstrate reasonable further progress toward attainment by the applicable date. The pertinent milestone achievement dates for the Maricopa County PM_{10} Serious Nonattainment Area, as presented in the *Revised MAG 1999 Serious Area Particulate Plan for PM_{10} For the Maricopa County Nonattainment Area* (1999/2000 MAG SIP or MAG SIP) (February 2000), are: 2001, 2003, and 2006. The milestone achievement date that was analyzed in this plan for achieving the 24-hour NAAQS is 2006. ADEQ continues the process of gathering data from state, county, and local jurisdictions, ADEQ continues to provide this data to EPA with final control measure commitments.

The 1999/2000 MAG SIP used emissions from its 1995 base modeling year, and 2001, 2003, and 2006 committed control measure inventories in the construction of its RFP analysis, which demonstrated attainment of the PM_{10} NAAQS no sooner than 2006. The MAG SIP RFP analysis evaluated the committed control measures as a package to estimate total emissions for 2001 and 2003, assuming full implementation of the measures related to:

- Coordination of traffic signals;
- Cleaner Burning Gasoline;
- Restaurant charbroilers;
- PM_{10} episode thresholds;
- Curbing, paving, or stabilizing shoulders on unpaved roads; and
- Paving, vegetating, and chemically stabilizing unpaved access points.

The MAG SIP assumed partial implementation with respect to:

- Strengthening and better enforcement of Maricopa County Rule 310;
- Paving unpaved roads;
- Reducing particulate emissions from unpaved parking lots and vacant, disturbed land; and
- Purchase/use of PM_{10}-efficient street-sweepers.

The MAG SIP assumed that the measure requiring commercial heavy-duty diesel vehicles to meet 1988 standards had no effect until 2004. Details regarding the modeling assumptions used to estimate the 2001 and 2003 emissions reductions are shown in MAG SIP TSD, Appendix IV, Exhibit 3.

6.2.1 REASONABLE FURTHER PROGRESS – CONCLUSIONS

The 1999/2000 MAG SIP RFP analysis showed attainment of PM_{10} NAAQS in 2006 (see MAG SIP Chapter 8, and Figure 8-4). The RFP analysis shows that the 2001 and 2003 emissions, given implemented SIP control measures, would result in emissions reductions from 191 metric tons per day of PM_{10} during MAG's 1995 base modeling year, to 152 metric tons per day of PM_{10} for 2001, and to 142 metric tons per day of PM_{10} for 2003. The MAG SIP demonstrates that PM_{10} NAAQS attainment is achieved in 2006, with total PM_{10} emissions of 130 metric tons per day. In addition, the MAG SIP, using regional UAM-LC modeling, estimated that both the 24-hour maximum, and the annual average PM_{10} concentrations would be under the required NAAQS of 150 μ/m^3, and 50 μ/m^3, respectively, in 2006, in the Maricopa County PM_{10} Nonattainment Area.

ADEQ's modeling in the *Revised PM_{10} State Implementation Plan for the Salt River Area*, considered the combined impact of control measures adopted in the 1999/2000 MAG SIP and those submitted in this SIP. ADEQ's modeling indicates achievement of the 24-hour PM_{10} NAAQS in the Salt River Study Area by December 31, 2006, assuming implementation of the PM_{10} control measures this SIP proposes. ADEQ expects that attainment of both the annual and 24-hour PM_{10} NAAQS will be achieved in the Maricopa County PM_{10} Serious Nonattainment Area by December 31, 2006, assuming implementation of the MAG SIP and Salt River SIP controls. Appendix E of this plan contains ADEQ's current implementation status of the 1999/2000 MAG SIP committed control measures.

6.3 CONTINGENCY MEASURES

Section 172(c)(9) of the CAA requires that a state implementation plan provide for the implementation of specific measures to be undertaken, without further action by the state, or the EPA Administrator, if a nonattainment area fails to make reasonable further progress, or fails to attain the national primary ambient air quality standard, or applicable milestone, by the relevant attainment date. The Clean Air Act requires that annual emissions be used to establish both RFP milestones and contingency measure goals. Chapter 8 of the 1999/2000 MAG SIP shows that the annual emissions reported for the milestone years – 2001, 2003, and 2006 – did not reflect the implementation of the following MAG SIP committed measures:

- Off-Road Vehicle and Engine Standards;
- Clean Burning Fireplace Ordinances;
- Additional Dust Control Measures (City of Tempe); and
- Additional Dust Control Measures (City of Phoenix).

Since the MAG SIP did not include the above measures in calculating the annual emission total used to set the milestones, it is reasonable to assume that if a milestone goal is missed, the above measures will provide interim public health and welfare protections, and should be considered contingency measures. Chapter 5 of the MAG SIP TSD shows the results of MAG's modeled emissions reductions from MAG SIP committed contingency measures, in 2006, estimating that the

sum of the impacts from all five measures will be estimated reductions of approximately 5.4 metric tons per day of PM_{10} (see 1999/2000 MAG SIP, Chapter 8, “Demonstration of Attainment Status,” page 8-17).

All current, committed contingency measures noted in the 1999/2000 MAG SIP are applicable to sources affecting PM_{10} concentrations in the Maricopa County PM_{10} Nonattainment Area. This fact is particularly significant since modeling for attainment in the Salt River Study Area was challenging due, in part, to high PM_{10} concentrations from surrounding background areas (see SIP, Chapter 5, Table 5-4, Reductions of Emissions Necessary to meet the Standard for Eight Salt River PM_{10} Exceedances). Also, commitments for implementing the PM_{10} control measures described in this SIP will affect not only significant sources in the Salt River Study Area, but similar sources throughout the Nonattainment Area – further decreasing background PM_{10} concentrations and facilitating attainment by December 31, 2006.

EMISSION SOURCE CATEGORY DESCRIPTIONS

Agricultural Tillage

Agricultural tillage is defined as emissions from agricultural operations. The emissions in this category originate from agricultural tilling (land preparation, planting, weed control), and agricultural equipment exhaust.

Construction Activity

Construction activity is defined as construction of residential housing, businesses, and industrial buildings. The emissions in this category originate from earthmoving and to a lesser degree, construction equipment exhaust.

Freeway

Freeway emissions are defined as those emissions from vehicle traffic on the Durango Curve on Interstate 17. The emissions in this category originate from brake wear, tire wear, exhaust, and road dust reentrainment

Industrial Sources

Industrial sources are defined as facilities such as factories, power plants, and rock product operations that are permitted by the county or by the state. The emissions in this category originate from fuel burning, industrial processes, materials processing, construction equipment exhaust, and vehicle traffic over disturbed surfaces. Emissions from these sources are typically separated into four categories: 1) stack emissions, which are emissions that exit through stacks from combustion and materials processing and are specifically described in MCESD's permit and/or emission survey for industrial sources (greater than 10 tons PM_{10} per year), 2) industrial area emissions, which are all other emissions from the facility, other than windblown, and includes material handling, crushing, screening, traffic on the facility, and the smaller stacks not listed in MCESD's permits or survey forms, 3) windblown emissions from stockpiles, and 4) windblown emissions from the land surface of the facility. Industrial areas emissions have been further divided into subcategories based on which MCESD rule applies to their operation, and into subcategories based on their nature (e.g., crushing and screening, haul road traffic, combustion, and so forth).

Primary Roads

Primary roads are defined as the major urban paved roads that are located at one-mile intervals. The emissions in this category originate from brake wear, tire wear, exhaust, and road dust reentrainment (road dust "kicked back" into the air from vehicles driving over it).

Secondary Roads

Secondary roads are defined as the minor urban paved roads that are located at half-mile intervals. The emissions in this category are the same as those in the primary roads category.

Unpaved Parking Lots

Unpaved parking lots are defined as parking lots, which have a gravel or dirt surface. The emissions in this category originate from reentrained dust from vehicle traffic in the unpaved parking lot.

Unpaved Road Shoulders

Unpaved road shoulders are defined as those road shoulders along paved roads that are not paved or stabilized. The emissions in this category originate from dust from the unpaved road shoulders being reentrained by the wake effect of large vehicles, such as large trucks and buses, traveling on the roadway.

Wind Erosion

Wind erosion is defined as the transport of disturbed / unconsolidated soil due to the movement of wind.

Wind Erosion – Agricultural

Agricultural land is defined as agricultural fields for growing crops. The emissions in this category originate from wind erosion of disturbed topsoil from agricultural fields in the time period between harvesting and when a crop is tall enough to act as a windbreak.

Wind Erosion – Alluvial Channels

Alluvial channels are defined as geological features such as dry streambeds, arroyos, and gullies that are dry most of the year and contain loose soil, especially silt, due to water and wind erosion. The emissions in this category originate from wind erosion of material in the alluvial channel.

Wind Erosion – Cleared Areas

Cleared areas consist of vacant lots and miscellaneous disturbed areas. Vacant lots are defined as undeveloped land with disturbed topsoil that are in residential or business areas, and miscellaneous disturbed areas are defined as areas with disturbed topsoil that do not fall into the previously mentioned emission categories. The emissions in this category originate from wind erosion of disturbed topsoil.

Wind Erosion – Construction

Construction is defined as those areas that have disturbed topsoil due to construction activity (e.g., earthmoving). The emissions in this category originate from wind erosion of disturbed topsoil on construction sites.

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Appendix A

PM_{10} NATIONAL AMBIENT AIR QUALITY MONITORING DATA FOR 24-HOUR STANDARD (1994-2004)

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table A. 1994 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	91	79	0	54
Chandler	1475 E Pecos Road	MCESD	HI-VOL	126	114	0	56
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	76	54	0	51
Mesa	Broadway & Brooks	MCESD	HI-VOL	73	51	0	43
Phoenix	601 E Butler Drive	MCESD	HI-VOL	73	66	0	51
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	371	215	12	55
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	97	89	0	56
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	75	69	0	50
Scottsdale	13665 N Scottsdale Rd	MCESD	HI-VOL	59	43	0	53
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	98	93	0	56

NOTES

Indicates the Site is within the Salt River Study area.

Table B. 1995 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	88	75	0	55
Chandler	1475 E Pecos Road	MCESD	HI-VOL	251	160	2	146
Gilbert[1]	15500 S Higley Road	MCESD	HI-VOL	78	74	0	50
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	70	63	0	87
Goodyear[2]	15099 W. Casey Abbott	ADEQ	DICHOT	86	65	0	44
Mesa	Broadway & Brooks	MCESD	HI-VOL	88	69	0	93
Phoenix	601 E Butler Drive	MCESD	HI-VOL	84	68	0	95
Phx-17th Ave	4530 N 17th Avenue	ADEQ	DICHOT	71	59	0	56
Phx-JLG Site[4]	4530 N 17th Avenue	ADEQ	HI-VOL	73	63	0	2084
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	199	196	15	57
Phx-Thunderbird[3]	4701 W. Thunderbird	ADEQ	DICHOT	57	51	0	51
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	74	73	0	82
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	74	69	0	100
Tempe[5]	3340 S. Rural	ADEQ	DICHOT	63	62	0	58
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	98	88	0	100

NOTES

Indicates the Site is within the Salt River Study area.

1 ADEQ added its Gilbert monitor site in 1995.
2 ADEQ added its Goodyear monitor in 1996.
3 ADEQ added a monitor at 4701 W. Thunderbird, in 1995.
4 ADEQ added two monitors at 4530 M. 17th Avenue, in Phoenix, in 1995.
5 ADEQ added a monitor in Tempe, in 1995.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table C. 1996 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	105	88	0	98
Chandler	1475 E Pecos Road	MCESD	HI-VOL	140	130	0	97
Gilbert	15500 S. Higley	ADEQ	DICHOT	179	114	1	55
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	67	60	0	92
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	82	72	0	55
Mesa	Broadway & Brooks	MCESD	HI-VOL	67	62	0	87
Mesa[6]	6001 S. Power Road	ADEQ	DICHOT	53	50	0	30
Phoenix	601 E Butler Drive	MCESD	HI-VOL	70	70	0	92
Phx-Salt River	3045 S 22nd Avenue	MCESD	TEOM	371	215	12	55
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	96	95	0	90
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	80	64	0	95
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	101	99	0	92
Tempe	3340 S. Rural	ADEQ	DICHOT	193	185	3	54
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	83	68	0	54
Phx-17th Ave	4530 N 17th Avenue	ADEQ	HI-VOL	137	104	0	8177
Phx-Thunderbird	4701 W. Thunderbird	ADEQ	DICHOT	58	57	0	55

NOTES

Indicates the Site is within the Salt River Study area.

6 ADEQ added a monitor in Mesa, in 1996.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table D. 1997 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	ADDRESS	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	108	96	0	90
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	150	144	0	94
Chandler	1475 E Pecos Road	MCESD	HI-VOL	220	148	1	95
Chandler	1475 E Pecos Road	MCESD	TEOM	312	307	9	76
Gilbert	525 N Lindsey Road	MCESD	HI-VOL	170	108	1	90
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	169	87	1	93
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	179	146	1	50
Higley[8]	15400 S. Higley	ADEQ	DICHOT	288	234	2	56
Maryvale[9]	6180 W Encanto Blvd	MCESD	HI-VOL	344	161	2	100
Mesa[10]	Broadway & Brooks	MCESD	HI-VOL	129	119	0	97
Palo Verde[11]	36248 W. Elliot Road	ADEQ	DICHOT	124	73	0	62
Phoenix	601 E Butler Drive	MCESD	HI-VOL	151	80	0	84
Phx-Greenwood	1128 N 27th Avenue	MCED	HI-VOL	220	124	1	93
Phx-Greenwood	1128 N 27th Avenue	ADEQ	HI-VOL	161	113	1	7792
Phx-Greenwood[13]	1128 N 27th Avenue	ADEQ	DICHOT	148	103	0	53
Phx-JLG Site[12]	4530 N 17th Avenue	ADEQ	HI-VOL	147	143	0	7328
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	131	82	0	57
Phx-Salt River	3045 S 22nd Avenue	MCED	TEOM	263	195	13	70
Phx-Salt River	3045 S 22nd Avenue	MCED	HI-VOL	480	301	12	93
Phx-Thunderbird	4701 W. Thunderbird	ADEQ	DICHOT	164	92	1	55
S. Phoenix	4732 S Central Avenue	MCED	HI-VOL	160	114	1	61
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	162	161	3	84
S. Scottsdale	2857 Miller Road	MCED	HI-VOL	154	84	0	98
Tempe	3340 S. Rural	ADEQ	DICHOT	90	74	0	56
W. Chandler	163 S Price Road	MCESD	TEOM	161	117	1	76
W. Chandler[7]	163 S Price Road	MCESD	HI-VOL	194	161	2	93
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	224	136	1	100
Wickenburg	Tenger St & Highway 93	MCESD	HI-VOL	125	64	0	20

NOTES

Indicates the Site is within the Salt River Study area

7 MCESD added a monitor in West Chandler, in 1997.
8 ADEQ added a Higley monitor in 1997.
9 MCESD added a Maryvale monitor in 1997.
10 ADEQ removed its Mesa monitor at 6001 S. Power Road, in 1997.
11 ADEQ added the Palo Verde monitor in 1997.
12 ADEQ's monitor was closed in 1997 at the Phoenix–JLG Site.
13 Three monitors were added to sites at I-10 and 27th Avenue (1128 N. 27th Avenue), just north of the current Salt River study area, in 1997. Two monitors were operated by ADEQ and one by MCESD.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table E. 1998 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	72	62	0	39
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	145	123	0	90
Chandler*	1475 E Pecos Road	MCESD	HI-VOL	96	86	0	84
Chandler*	1475 E Pecos Road	MCESD	TEOM	124	116	0	81
Gilbert	525 N Lindsey Road	MCESD	HI-VOL	95	93	0	90
Glendale*	6000 W Olive Avenue	MCESD	HI-VOL	75	74	0	92
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	56	56	0	61
Higley	15500 S. Higley	ADEQ	DICHOT	135	116	0	61
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	69	67	0	54
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	93	84	0	95
Mesa	Broadway & Brooks	MCESD	HI-VOL	64	56	0	100
Palo Verde	36248 W. Elliot Road	ADEQ	DICHOT	47	46	0	55
Phoenix	601 E Butler Drive	MCESD	HI-VOL	67	63	0	92
Phx-Greenwood	1128 N 27th Avenue	MCED	HI-VOL	107	99	0	97
Phx-Greenwood	1128 N 27th Avenue	ADEQ	DICHOT	106	95	0	37
Phx-Salt River	3045 S 22nd Avenue	MCESD	TEOM	232	207	25	87
Phx-Salt River*	3045 S 22nd Avenue	MCESD	HI-VOL	403	198	4	39
Phx-Thunderbird	4701 W. Thunderbird	ADEQ	DICHOT	55	53	0	61
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	77	68	0	41
S. Phoenix	4732 S Central Avenue	MCESD	TEOM	115	113	0	91
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	82	66	0	93
Tempe	3340 S. Rural	ADEQ	DICHOT	70	68	0	61
W. Chandler*	163 S Price Road	MCESD	HI-VOL	85	77	0	100
W. Phoenix*,[14]	3847 W Earll Drive	MCESD	HI-VOL	81	77	0	95
Wickenburg[15]	Tenger St & Highway 93	MCESD	HI-VOL	61	56	0	16

NOTES

Indicates the Site is within the Salt River Study area

* Indicates data differs from that of the United States Environmental Protection Agency Air Quality System quick Look Report (AMP450), received from ADEQ's Assessment 04/26/2005

14 MCESD added its Phoenix–Salt River monitor in 1998.

15 MCESD removed its Wickenburg monitor in 1998.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table F. 1999 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	85	85	0	75
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	149	100	0	84
Chandler	1475 E Pecos Road	MCESD	HI-VOL	110	100	0	98
Gilbert	525 N Lindsey Road	MCESD	HI-VOL	90	88	0	92
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	77	63	0	97
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	80	73	0	59
Higley	15500 S. Higley	ADEQ	DICHOT	208	110	1	58
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	104	96	0	100
Mesa	Broadway & Brooks	MCESD	HI-VOL	80	71	0	100
Palo Verde	36248 W Elliot Road	ADEQ	DICHOT	89	47	0	88
Phoenix	601 E Butler Drive	MCESD	HI-VOL	70	63	0	95
Phx-Durango[16]	2702 AC Esterbrook Blvd		HI-VOL	148	143	0	97
Phx-Greenwood	1128 N 27th Avenue	ADEQ	DICHOT	111	111	0	55
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	117	115	0	98
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	79	70	0	97
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	256	219	8	80
Phx-Thunderbird	4701 W. Thunderbird	ADEQ	DICHOT	55	53	0	59
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	126	116	0	100
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	67	62	0	60
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	87	80	0	95
Tempe	3340 S. Rural	ADEQ	DICHOT	82	78	0	55
W. Chandler	163 S Price Road	MCESD	HI-VOL	104	92	0	98
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	111	103	0	95

NOTES

Indicates the Site is within the Salt River Study area

16 MCESD added the Phoenix–Durango Complex monitor in 1999, adding to monitoring data for the Salt River Study Area.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table G. 2000 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	135	105	0	97
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	145	130	0	92
Chandler	1475 E Pecos Road	MCESD	HI-VOL	202	145	1	97
Gilbert	525 N Lindsey Road	MCESD	HI-VOL	128	109	0	98
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	122	100	0	95
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	82	77	0	44
Higley[17]	15400 S Higley Road	MCESD	HI-VOL	144	111	0	90
Higley	15400 S Higley Road	ADEQ	DICHOT	136	129	0	53
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	173	109	1	100
Mesa	Broadway & Brooks	MCESD	HI-VOL	126	94	0	100
Palo Verde	36248 W Elliot Road	ADEQ	DICHOT	75	62	0	93
Phoenix	601 E Butler Drive	MCESD	HI-VOL	114	114	0	97
Phx-Durango	2702 AC Ester Brook Blvd	MCESD	HI-VOL	300	173	2	100
Phx-Greenwood	1128 N 27th Avenue	ADEQ	DICHOT	80	84	0	100
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	164	159	2	98
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	84	84	0	100
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	244	232	6	89
Phx-Thunderbird	4701 W. Thunderbird	ADEQ	DICHOT	101	84	0	59
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	175	122	1	100
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	100	98	0	100
Tempe	3340 S. Rural	ADEQ	DICHOT	95	81	0	57
W. Chandler	163 S Price Road	MCESD	HI-VOL	95	62	0	86
W. Chandler	Ellis & Frye Rd	MCESD	HI-VOL	135	78	0	93
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	151	133	0	97

NOTES

Indicates the Site is within the Salt River Study area

17 MCESD added a monitor in Higley, in 2000.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table H. 2001 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	124	65	0	98
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	133	122	0	87
Chandler	1475 E Pecos Road	MCESD	HI-VOL	146	99	0	100
Gilbert[18]	525 N Lindsey Road	MCESD	HI-VOL	121	119	0	100
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	111	64	0	95
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	122	51	0	90
Higley[19]	15400 S Higley Road	ADEQ	DICHOT	NA	NA	NA	NA
Higley	15400 S Higley Road	MCESD	HI-VOL	176	93	1	97
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	123	123	0	97
Mesa	Broadway & Brooks	MCESD	HI-VOL	98	55	0	100
Palo Verde	36248 W Elliot Road	ADEQ	DICHOT	71	54	0	85
Phoenix	601 E Butler Drive	MCESD	HI-VOL	99	55	0	100
Phx-Durango	2702 AC Esterbrook Blvd	MCESD	HI-VOL	189	142	1	100
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	145	99	0	97
Phx-Greenwood[20]	1128 N 27th Avenue	ADEQ	DICHOT	NA	NA	NA	NA
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	109	58	0	97
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	281	276	6	98
Phx-Thunderbird[21]	4701 W. Thunderbird	ADEQ	DICHOT	42	39	0	59
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	143	92	0	98
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	143	92	0	98
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	110	53	0	100
Surprise[22]	18600 N. Reems Road	MCESD	HI-VOL	107	52	0	97
Tempe	3340 S. Rural	ADEQ	DICHOT	109	55	0	95
W. Chandler	163 S Price Road	MCESD	HI-VOL	134	58	0	100
W. Chandler	Ellis & Frye Rd	MCESD	HI-VOL	135	58	0	100
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	142	91	0	100

NOTES

Indicates the Site is within the Salt River Study area

18 The Gilbert monitor was closed on December 31, 2001

19 ADEQ's Higley monitor was removed in 2001.

20 ADEQ's Phoenix–Greenwood monitor was removed in 2001.

21 The Phoenix–Thunderbird (ASU West) monitor was closed on August 6, 2001

22 MCESD placed a SPM monitor in Surprise, Arizona in 2001.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table I. 2002 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	81	76	0	100
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	96	95	0	89
Chandler	1475 E Pecos Road	MCED	HI-VOL	128	117	0	100
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	88	85	0	98
Goodyear	15099 W. Casey Abbott	ADEQ	DICHOT	92	68	0	85
Higley	15400 S Higley Road	MCESD	HI-VOL	138	134	0	95
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	142	90	0	92
Mesa	Broadway & Brooks	MCESD	HI-VOL	102	86	0	100
Palo Verde	36248 W Elliot Road	MCESD	DICHOT	100	78	0	97
Phoenix	601 E Butler Drive	MCESD	HI-VOL	80	72	0	98
Phx-Durango	2702 AC Esterbrook Blvd	MCESD	HI-VOL	232	158	2	100
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	116	102	0	100
Phx-JLG Site	4530 N 17th Avenue	MCESD	DICHOT	72	52	0	74
Phx-Salt River	3045 S 22nd Avenue	MCESD	HI-VOL	249	174	2	98
Phx-W 43rd[23]	3940 W Broadway Road	MCESD	HI-VOL	172	135	1	100
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	137	123	0	100
S. Phoenix	4732 S Central Avenue	MCESD	HI-VOL	137	123	0	100
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	64	62	0	100
Surprise	18600 N. Reems Road	MCESD	HI-VOL	81	67	0	97
Tempe	3340 S. Rural	ADEQ	DICHOT	65	60	0	90
W. Chandler	163 S Price Road	MCESD	HI-VOL	80	77	0	100
W. Chandler	Ellis & Frye Rd	MCESD	HI-VOL	80	77	0	100
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	122	98	0	100

NOTES

Indicates the Site is within the Salt River Study area

23 The West 43rd Avenue monitoring site was opened on April 1, 2002

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table J. 2003 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Phx-Bethune Elem	1310 S. 15th Avenue	ADEQ	DICHOT	145	115	0	90
Phx-Bethune Elem	Ellis & Frye Rd	MCESD	HI-VOL	206	197	2	97
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	114	87	0	97
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	183	175	3	90
Chandler	1475 E Pecos Road	MCESD	HI-VOL	240	126	1	98
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	151	129	0	100
Higley	15400 S Higley Road	MCESD	HI-VOL	225	151	1	95
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	151	137	0	100
Mesa	Broadway & Brooks	MCESD	HI-VOL	176	112	1	100
Palo Verde	36248 W Elliot Road	ADEQ	DICHOT	158	108	1	97
Phoenix	601 E Butler Drive	MCESD	HI-VOL	155	132	1	97
Phx-Durango	2702 AC Esterbrook Blvd	MCESD	HI-VOL	195	128	1	100
Phx-Dysart	16825 N Dysart	MCESD	HI-VOL	133	86	0	100
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	166	126	1	98
Phx-JLG Site	4530 N 17th Avenue	ADEQ	DICHOT	169	131	1	90
Phx-W 43rd	3940 W Broadway Road	MCESD	HI-VOL	157	154	1	98
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	164	135	1	98
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	172	124	1	100
Surprise	18600 N. Reems Road	MCESD	HI-VOL	42	32	0	88
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	158	136	1	98

NOTES

Indicates the Site is within the Salt River Study area.

24-Hour PM_{10} Ambient Air Quality Monitoring Network Data for Maricopa County and the Salt River PM_{10} Salt River Study Area

Table K. 2004 PM10 Monitoring Data Summary (µ/m3), from the United States Environmental Protection Agency, Air Quality System Site Description Report

City Location	Address	Operator	Method	24-Hour Average		Number of Exceedances	Number of Samples
				1st Max	2nd Hi		
Phx-Bethune Elem	1310 S. 15th Avenue	ADEQ	DICHOT	122	108	0	97
Phx-Bethune Elem	1310 S. 15th Avenue	ADEQ	DICHOT	103	63	0	100
Buckeye	26453 W. MC85	MCESD	HI-VOL	289	82	1	92
Central Phoenix	1845 E Roosevelt Street	MCESD	HI-VOL	81	55	0	98
Central Phoenix	1845 E Roosevelt Street	MCESD	TEOM	94	88	0	93
Chandler	1475 E Pecos Road	MCESD	HI-VOL	150	80	0	100
Glendale	6000 W Olive Avenue	MCESD	HI-VOL	69	47	0	97
Higley	15400 S Higley Road	MCESD	HI-VOL	159	150	1	98
Maryvale	6180 W Encanto Blvd	MCESD	HI-VOL	46	42	0	100
Mesa	Broadway & Brooks	MCESD	HI-VOL	49	40	0	100
Palo Verde	36248 W Elliot Road	ADEQ	DICHOT	42	34	0	89
Phoenix	601 E Butler Drive	MCESD	HI-VOL	46	43	0	97
Phx-Durango	2702 AC Esterbrook Blvd	MCESD	HI-VOL	139	122	0	99
Phx-Dysart	16825 N Dysart	MCESD	HI-VOL	94	80	0	100
Phx-Greenwood	1128 N 27th Avenue	MCESD	HI-VOL	100	82	0	100
Phx-W 43rd	3940 W Broadway Road	MCESD	HI-VOL	145	133	0	96
S. Phoenix	33 W Tamarisk Avenue	MCESD	HI-VOL	132	126	0	95
S. Scottsdale	2857 Miller Road	MCESD	HI-VOL	77	41	0	100
W. Chandler	Ellis & Frye Rd	MCESD	HI-VOL	70	55	0	100
W. Phoenix	3847 W Earll Drive	MCESD	HI-VOL	100	72	0	100

NOTES

Indicates the Site is within the Salt River Study area.

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Appendix B

MARICOPA COUNTY BACM/MSM RULE REVISIONS AND ADOPTED RULE

Revisions for:

Maricopa County Rule 310	– Fugitive Dust
Maricopa County Rule 310.01	– Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways
Maricopa County Rule 316	– Nonmetallic Mineral and Processing

And Proof of Adoption for:

New Rule 325 –	– Brick and Structural Clay Products (BSCP) Manufacturing

Revision to
Maricopa County Rule 310
Fugitive Dust

Maricopa County
Air Quality Department

Joy Rich, Director
1001 North Central, Ste 500
Phoenix, Arizona 85004-1950
Phone: (602) 506-6747
Fax: (602) 506-7303

January 19, 2005

Stephen A. Owens
Arizona Department Of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Mr. Owens:

Enclosed is a final State Implementation Plan revision package for amendments to the Maricopa County Air Pollution Control Regulations consistent with A.R.S. §49-479 and 40 CFR 51. The enclosed amendments concern the following:

Rule 310 – Fugitive Dust
Appendix C – Fugitive Dust Test Methods
Appendix F – Soil Designations

We are submitting this package to the Arizona Department Of Environmental Quality as an official revision to the Arizona State Implementation Plan.

Thank you for your cooperation and consideration in this matter. If you have any questions, please contact Jo Crumbaker, Manager-Planning & Analysis Branch, at (602) 506-6705.

Sincerely,

Joy Rich, Director

cc: Julie Rose, EPA
Frances Wicher, EPA
Wayne Nastri, EPA
Andrew Steckel, EPA
Colleen McKaughan, EPA
Nancy Wrona, ADEQ

State Implementation Plan Revision Package

Revisions To The
Maricopa County Air Pollution Control Regulations
Rule 310 – Fugitive Dust
Appendix C – Fugitive Dust Test Methods
Appendix F – Soil Designations

Prepared By
Maricopa County Air Quality Department
Planning & Analysis Branch
1001 North Central Avenue, Suite 695
Phoenix, Arizona 85004
(602) 506-6705

Completeness Checklists

COMPLETENESS CHECKLIST

1. **Agency:** Maricopa County Air Quality Department

2. **Submitted Rule:**

Number	Title	Adoption Date
310	Fugitive Dust	07/13/88
		07/06/93
		09/20/94
		06/16/99
		02/16/00
		04/07/04

3. **EPA Analogous Approved Rule (Applicable SIP):**

Rule 310 is analogous to EPA Applicable SIP approved Rule 31 (Emissions of Particulate Matter (A),(B),(H)) and Rule 310 (Open Fugitive Dust Sources).

4. **State/District Authority For Adoption/Implementation:**

Arizona Revised Statutes (ARS) §49-406(G), ARS §49-479, and ARS §49-480.

5. **Pollutants Regulated By Rule:**

PM ✓, SO_x__, VOC__, NO_x__, CO__, Pb___

6. **Identification Of Sources By Name Or Number/Location (City, County, Or District) Area's Attainment And Plan Status (Group By Size/Subcategory, If Necessary):**

The provisions of Rule 310 apply to all dust generating operations except for normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under the Maricopa County Air Pollution Control Regulations.

PM_{10} Classification:	Serious (As Of June 1996)
Carbon Monoxide Classification:	Serious (As Of July 1996)[1]
1-Hour Ozone Classification:	Serious (As Of February 1998)[2]
8-Hour Ozone Classification:	Basic (As Of April 15, 2004)

[1]On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.
[2]On May 16, 2001, the EPA finalized its finding of attainment for the Phoenix area for the 1-hour national air quality standard for ground-level ozone. The EPA has not yet re-designated the area to attainment with the 1-hour ozone standard. Arizona must first submit an air quality maintenance plan showing how the Phoenix area will maintain the 1-hour ozone standard for 10 years.

7. **Summary Of Rule/Rule Changes:**

Rule 310, originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious nonattainment area for PM_{10}, the Maricopa County Environmental Services Department (MCESD) helped develop a PM_{10} serious area nonattainment plan for the Arizona State Implementation Plan. The Environmental Protection

Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County. The revisions to Rule 310 address the commitments.

Commitment #1: Maricopa County's first commitment was to "research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage." The EPA requested this commitment to address its concern that the existing opacity standard and test method in Appendix C for earthmoving operations is not always sufficient to control construction site dust to BACM levels. Although the opacity test method was revised in the year 2000, the EPA believes that additional revisions are necessary to fully assure that fugitive dust is effectively controlled.

To meet this commitment, Maricopa County amended Appendix C of the Maricopa County Air Pollution Control Regulations, which outlines test methods used for fugitive dust observations. After much field research with the cooperation of the EPA and Clark County, Nevada, Maricopa County revised Section 3 of Appendix C by establishing test methods for non-continuous and continuous plumes from dust generating operations. The completeness checklist for Appendix C is in a separate document.

Commitment #2: Maricopa County's second commitment was to "research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310". The second commitment addresses the EPA's concerns that dust control plans lack source-specific criteria for varying dust control measures. A specific example the EPA gives is that of a source engaged in grading or cut-and-fill earthmoving operations for a multi-acre project that chooses to comply with Rule 310 by applying water. Neither the rule nor the source's dust control plan establishes minimum criteria for the number and size of water trucks/water applications systems for any given size construction site or a ratio of earthmoving equipment to water trucks.

Maricopa County added new provisions to Rule 310, itself, and revised dust control plan forms and permit application forms to incorporate the proposed rule revisions and clarify the instructions and layout. In Rule 310, new requirements include:

- Dust control on all paved areas accessible to the public
- The presence of water sources on-site at projects 1 acre or larger
- Trackout control devices at sites two acres or larger
- More detailed recordkeeping
- Soil type statements for construction projects one acre or larger

New Appendix F addresses the soil statements required to meet Commitment #2. The appendix contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide soil test results but in the event soil test results are not available, the soil type maps may be used as default information on permit applications. Maricopa County is currently developing a guidance document outlining what types of control measures should be used for various soil characteristics.

Secondly, to meet Commitment #2, Maricopa County revised dust control permit applications to more clearly request the information that is required in order to evaluate chosen control measures. With this information provided up front, Maricopa County expects to be able to approve or disapprove dust control plans based on whether specified control measures will be effective at each unique site. A dust generating operation will not be able to obtain an earthmoving permit until a satisfactory dust control plan is submitted and approved by the Environmental Services Department.

Commitment #3: Maricopa County's third commitment was to "revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures

required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources." This commitment addresses the EPA's concern that while Rule 310 currently contains acceptable recordkeeping requirements, a more specific recordkeeping requirement would help improve compliance.

To address this commitment, Maricopa County has already revised sample record keeping logs and made them widely available to regulated sources and the public. Additionally, Maricopa County clarified the recordkeeping requirements listed in Rule 310, Section 500 to reflect the changes to the sample forms. Changes to this section include providing examples of dust suppression activities for which recordkeeping is required.

Other revisions to this rule and appendices improve clarity, fix typographical and formatting errors, and increase rule enforceability.

8. Rule's Effect On Emissions:

The air quality modeling previously submitted to the EPA was revised to reflect a lower compliance rate (80%) for Rule 310. According to the revised air quality modeling, the committed measures in the revised serious PM_{10} nonattainment area plan are expected to result in attainment of both the 50 micrograms per cubic meter annual average PM_{10} standard and the 150 micrograms per cubic meter 24-hour PM_{10} standard in 2006. Specifically, the committed measures are expected to result in an annual PM_{10} concentration of 49.68 micrograms per cubic meter and a 24-hour PM_{10} concentration of 149.3 micrograms per cubic meter in 2006.

The single most effective control measure for modeling attainment of the annual average PM_{10} standard is strengthening and better enforcement of Rule 310. Maricopa County committed to hire additional inspectors. New inspectors will expand the geographic coverage and frequency of proactive inspection and will improve Maricopa County's response time to complaints. Also, Maricopa County's Rule 310 outreach and education program will assist in achieving maximum compliance by 2006.

The evaluation of the committed measures - those used for numeric credit and those which will improve air quality but are not used for numeric credit - are summarized below:

- It is assumed that PM_{10} emissions resulting from construction activities are 72% controlled in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- It is assumed that methods used to remove and/or control trackout form construction sites resulted in 72% control in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- Assumptions related to the control of windblown emissions from construction sites were revised to be consistent with the assumptions related to control of construction-activity generated fugitive dust. It was assumed that construction sites on the regional scale used the following control measures equally: wind fences, chemical stabilizers, gravel, and watering. It was assumed that windblown emissions from construction sites were 70% controlled in 2006. Because the base case emissions were assumed to be 20% controlled, raising the control to 70% for 2006 will provide 62.4% control of the base case emissions for 2006.

- The acreage of construction activity that was used to estimate total construction emissions in the modeling inventory was based on the permitted acres of construction. Therefore, only emissions from permitted construction activities appear in the inventory and a rule penetration of 100% is appropriate for Rule 310 with regard to construction activities.

9. Demonstration That NAAQS/PSD Increments/RFP Demonstration Are Protected (As Appropriate):

Rule 310 strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations.

In accordance with 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was initially classified as "moderate" for PM_{10} pollution. As a moderate nonattainment area, Maricopa County was required to submit to the EPA a moderate PM_{10} nonattainment area plan and to show attainment of the PM_{10} national ambient air quality standards (NAAQS) by December 31, 1994. Moderate PM_{10} nonattainment area plans were submitted to the EPA in 1991 and 1993.

The Maricopa County moderate PM_{10} nonattainment area, upon the EPA's findings, failed to attain the NAAQS by December 31, 1994. Consequently, on May 10, 1996, the EPA reclassified Maricopa County as a serious PM_{10} nonattainment area. Maricopa County was then required to submit a serious PM_{10} nonattainment area plan, which had to include Best Available Control Measures (BACM), measures designed to achieve the maximum degree of emissions reduction for PM_{10} sources. Maricopa County had to show attainment of the PM_{10} NAAQS by December 21, 2001.

Emission inventories and air quality modeling analysis of existing control measures showed that attainment could not be reached by December 21, 2001. A shortfall of a 16.4% reduction in PM_{10} concentration was identified. Consequently, a rigorous planning effort was conducted to develop 77 additional control measures, which included revising Maricopa County's Rule 310. The serious PM_{10} nonattainment area plan was submitted to the EPA on July 9, 1999.

On November 9, 1999, the EPA determined that the serious PM_{10} nonattainment area plan could not be approved, because the plan assumed that Maricopa County's Rule 310 and Rule 310.01 would achieve 90% compliance by 2006. The EPA believed that the compliance rate was unrealistic and that there was no strategy in the plan for reducing dust on private unpaved roads. To address the approvability issues, Maricopa County committed to revising Rule 310 and to strengthening the enforcement of Rule 310. A revised serious PM_{10} nonattainment area plan was submitted to the EPA in February 2000.

The EPA approved the revised serious PM_{10} nonattainment area plan in April 2002, contingent on the completion of three commitments by Maricopa County. The revisions to Rule 310 address the commitments.

10. Modeling Information Used To Support Rule Revision:

Modeling information was not used to support revisions to Rule 310, because the revisions to Rule 310 strengthen the SIP.

11. Evidence That Emissions Limitations Are Based On Continuous Emission Reduction Technology, Add-On Controls, Reformulated Materials, And/Or Industrial/Process Equipment Designs:

The provisions of Rule 310 apply to all dust generating operations except for normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under the Maricopa County Air Pollution Control Regulations.

The emissions limitations and work practices standards required in Rule 310 include the most stringent measures from other states. For example, the control measures for trackout are potentially more stringent than South Coast's Rule 403; the control measures for bulk material transport are as stringent as the most stringent measures identified in Imperial County's Regulation VIII; the control

measures for material spillage, erosion, and accumulation onto roadways are as stringent at South Coast's Rule 1186.

12. Identification Of Section/Paragraph In Rule That Contains Emission Limitations, Work Practice Standards, Averaging Times, Test Procedures And/Or Recordkeeping/Reporting Requirements:

Emission limitations are described in Section 301 (Opacity Limitation For Dust Generating Operations).

Stabilization requirements are described in Section 302 (Stabilization Requirements For Dust Generating Operations).

Work practice standards are described in Section 306 (Control Measures) and in Section 308 (Work Practices).

Test procedures and recordkeeping/reporting requirements are described in Section 501 (Compliance Determination), Section 502 (Recordkeeping), Section 503 (Records Retention), and Section 504 (Test Methods Adopted By Reference).

13. Compliance/Enforcement Strategies To Be Used To Determine Compliance (Including Frequency Of Inspection):

Implementation of an enhanced fugitive dust program includes public outreach/education, rule development, staffing, inspection frequency, policy development, enforcement plan development, and performance measures. Rule 310 requirements are administered through a visual inspection program and/or a permit program that includes review of permits, inspection of work sites, performance of compliance test methods, and review of records and activities. Maricopa County's enforcement options include: compliance status notification, notice of violation, follow-up inspection/investigation, Department report, referral to County Attorney, review by Enforcement Officer, order of abatement by consent, order of abatement, civil complaint, notice to appear and complaint (criminal complaint), injunctive relief, photographs, videos, compliance inspection reports, correspondence, records, other applicable documentation, and analytical tests.

14. Special Economic/Technological Justifications For Deviations From EPA Policies (As Appropriate):

Rule 310 does not deviate from EPA policies.

15. Other Comments:

Attached Support Documentation Includes The Following:

Appendix 1	Notice Of Proposed Rulemaking
Appendix 2	Agenda Form And Notice Of Final Rulemaking
Appendix 3	Notice Of Public Hearing
Appendix 4	Affidavit Of Publication
Appendix 5	Certified Excerpts From The Minutes Of The Board Of Supervisors' Public Hearing
Appendix 6	Final Adopted Version Of Rule

For EPA Use Only

SIP RULE REVISION IS:	_____ COMPLETE	_____ INCOMPLETE

	Name	Telephone Number
District Contact:	Jo Crumbaker	(602) 506-6705
State Contact:	Ira Domsky Mark Lewandowski	(602) 771-2365 (602) 771-2230
EPA Contact:		

State Submittal Date:

EPA SIP Enforceability Statement

1. APPLICABILITY

a. What sources are being regulated?

The provisions of Rule 310 apply to all dust generating operations. Dust generating operations include: any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

b. What exemptions are provided?

Rule 310 does not apply to normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under the Maricopa County Air Pollution Control Regulations.

c. What are the units of compliance?

Sources subject to Rule 310 must comply with an opacity limitation of 20% and must meet test methods and stabilization requirements.

d. Is bubbling or averaging of any type allowed?

No.

e. If there is a redesignation, will this change the emission limitations?

No.

2. COMPLIANCE DATES

a. What is the compliance date?

Rule 310, Section 306 (Control Measures) requires the owner and/or operator of a dust generating operation to implement control measures before, after, and while conducting operations, including during weekends, after work hours, and on holidays, in accordance with Rule 310, Section 304.3 (Elements Of A Dust Control Plan) and Tables 1-21 of Rule 310.

Rule 310, Section 306.2 (Control Measures) states: "For the purpose of this rule, any control measure that is implemented must achieve the applicable standard(s) described in Section 301 (Opacity Limitation For Dust Generating Operations) and Section 302 (Stabilization Requirements For Dust Generating Operations) of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule".

Rule 310, Section 306.3 (Control Measures) states: "Failure to comply with the provisions of Section 308 (Work Practices) of this rule, as applicable, and/or of an approved Dust Control Plan, is deemed in violation of this rule".

Rule 310, Section 306.4 (Control Measures) states regardless of whether a dust generating operation is in compliance with an approved Dust Control Plan, or there is no approved Dust Control Plan, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times".

b. What is the attainment date?

PM_{10} attainment date:	December 31, 2006.
Carbon monoxide attainment date:	December 31, 2000*.
Ozone attainment date:	November 15, 1999.

*On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.

3. SPECIFICITY OF CONDUCT

a. What test method is required?

To determine compliance with Rule 310, the following test methods shall be followed:

Opacity Observations:

- Dust Generating Operations: Opacity observations of a source engaging in dust generating operations shall be conducted in accordance with Appendix C, Section 3 (Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations).
- Unpaved Parking Lot: Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.
- Unpaved Haul/Access Road: Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

Stabilization Observations:

- Unpaved Parking Lot: Stabilization observations for unpaved parking lots shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules. When more than 1 test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.
- Unpaved Haul/Access Road: Stabilization observations for unpaved haul/access roads (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rule. When more than 1 test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.
- Open Area And Vacant Lot Or Disturbed Surface Area: Stabilization observations for an open area or vacant lot or any disturbed surface area on which no activity is occurring (whether at a work site that is under construction, at a work site that is temporarily or permanently inactive) shall be conducted in accordance with at least one of the techniques described below, as applicable. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if such inactive disturbed surface area is not maintained in a manner that meets at least 1 of the standards described in Section 302.3 (Stabilization Requirements For Dust Generating Operations-Open Area And Vacant Lot Or Disturbed Surface Area) of this rule, as applicable.
  - Appendix C, Section 2.3 (Test Methods For Stablization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules for a visible crust; or

- A ppendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher; or
- A ppendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or
- A ppendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; or
- A ppendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or
- A ppendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements; or
- A n alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

b. What is the averaging time in the compliance test method?

The averaging time in the compliance test method is described in Appendix C (Fugitive Dust Test Methods). Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). The completeness checklist for Appendix C is in a separate document.

4. RECORDKEEPING

a. What records are required to determine compliance?

Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

Any person who conducts dust generating operations that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

b. In what forms or units must records be kept?

Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

Any person who conducts dust generating operations that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind

barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

c. On what time basis must records be kept?

Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least six months following the termination of the dust generating operation. Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least 1 year from the date such records were initiated. If a person has obtained a Title V Permit and is subject to the requirements of this rule, then such person shall retain records required by this rule for at least 5 years from the date such records are established.

COMPLETENESS CHECKLIST

1. **Agency:** Maricopa County Air Quality Department

2. **Submitted Rule:**

Number	Title	Adoption Date
Appendix C	Fugitive Dust Test Methods	06/16/99 02/16/00 04/07/04

3. **EPA Analogous Approved Rule (Applicable SIP):**

No version of Appendix C is currently in the Maricopa County portion of the federally-approved SIP.

4. **State/District Authority For Adoption/Implementation:**

Arizona Revised Statutes (ARS) §49-406(G), ARS §49-479, and ARS §49-480

5. **Pollutants Regulated By Rule:**

PM_✓_, SO_x__, VOC__, NO_x__, CO__, Pb___

6. **Identification Of Sources By Name Or Number/Location (City, County, Or District) Area's Attainment And Plan Status (Group By Size/Subcategory, If Necessary):**

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust).

PM_{10} Classification:	Serious (As Of June 1996)
Carbon Monoxide Classification:	Serious (As Of July 1996)[1]
1-Hour Ozone Classification:	Serious (As Of February 1998)[2]
8-Hour Ozone Classification:	Basic (As Of April 15, 2004)

[1]On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.
[2]On May 16, 2001, the EPA finalized its finding of attainment for the Phoenix area for the 1-hour national air quality standard for ground-level ozone. The EPA has not yet re-designated the area to attainment with the 1-hour ozone standard. Arizona must first submit an air quality maintenance plan showing how the Phoenix area will maintain the 1-hour ozone standard for 10 years.

7. **Summary Of Rule/Rule Changes:**

Rule 310 (Fugitive Dust), originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious nonattainment area for PM_{10}, the Maricopa County Environmental Services Department (MCESD) helped develop a PM_{10} serious area nonattainment plan for the Arizona State Implementation Plan. The Environmental Protection Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County. The revisions to Appendix C address one of the commitments.

Maricopa County committed to "research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research that are enforceable and meet BACM requirements on stringency and source coverage." EPA requested this commitment to address its concern that the existing opacity standard and test method in Appendix C for earthmoving operations is not always sufficient to control construction site dust to BACM levels. Although the

opacity test method was revised in the year 2000, EPA believes that additional revisions are necessary to fully assure that fugitive dust is effectively controlled.

To meet this commitment, Maricopa County amended Appendix C of the Maricopa County Air Pollution Control Regulations, which outlines test methods used for fugitive dust observations. After much field research with the cooperation of the EPA and Clark County, Nevada, Maricopa County revised Section 3 of Appendix C by establishing test methods for non-continuous and continuous plumes from dust generating operations.

8. Rule's Effect On Emissions:

Appendix C is associated with Rule 310 (Fugitive Dust).

The air quality modeling previously submitted to EPA was revised to reflect a lower compliance rate (80%) for Rule 310. According to the revised air quality modeling, the committed measures in the revised serious PM_{10} nonattainment area plan are expected to result in attainment of both the 50 micrograms per cubic meter annual average PM_{10} standard and the 150 micrograms per cubic meter 24-hour PM_{10} standard in 2006. Specifically, the committed measures are expected to result in an annual PM_{10} concentration of 49.68 micrograms per cubic meter and a 24-hour PM_{10} concentration of 149.3 micrograms per cubic meter in 2006.

The single most effective control measure for modeling attainment of the annual average PM_{10} standard is strengthening and better enforcement of Rule 310. Maricopa County committed to hire additional inspectors. New inspectors will expand the geographic coverage and frequency of proactive inspection and will improve Maricopa County's response time to complaints. Also, Maricopa County's Rule 310 outreach and education program will assist in achieving maximum compliance by 2006.

The evaluation of the committed measures - those used for numeric credit and those which will improve air quality but are not used for numeric credit - are summarized below:

- It is assumed that PM_{10} emissions resulting from construction activities are 72% controlled in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- It is assumed that methods used to remove and/or control trackout form construction sites resulted in 72% control in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- Assumptions related to the control of windblown emissions from construction sites were revised to be consistent with the assumptions related to control of construction-activity generated fugitive dust. It was assumed that construction sites on the regional scale used the following control measures equally: wind fences, chemical stabilizers, gravel, and watering. It was assumed that windblown emissions from construction sites were 70% controlled in 2006. Because the base case emissions were assumed to be 20% controlled, raising the control to 70% for 2006 will provide 62.4% control of the base case emissions for 2006.

- The acreage of construction activity that was used to estimate total construction emissions in the modeling inventory was based on the permitted acres of construction. Therefore, only emissions from permitted construction activities appear in the inventory and a rule penetration of 100% is appropriate for Rule 310 with regard to construction activities.

9. Demonstration That NAAQS/PSD Increments/RFP Demonstration Are Protected (As Appropriate):

Appendix C is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document.

In accordance with 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was initially classified as "moderate" for PM_{10} pollution. As a moderate nonattainment area, Maricopa County was required to submit to EPA a moderate PM_{10} nonattainment area plan and to show attainment of the PM_{10} national ambient air quality standards (NAAQS) by December 31, 1994. Moderate PM_{10} nonattainment area plans were submitted to EPA in 1991 and 1993.

The Maricopa County moderate PM_{10} nonattainment area, upon EPA's findings, failed to attain the NAAQS by December 31, 1994. Consequently, on May 10, 1996, EPA reclassified Maricopa County as a serious PM_{10} nonattainment area. Maricopa County was then required to submit a serious PM_{10} nonattainment area plan, which had to include Best Available Control Measures (BACM), measures designed to achieve the maximum degree of emissions reduction for PM_{10} sources. Maricopa County had to show attainment of the PM_{10} NAAQS by December 21, 2001.

Emission inventories and air quality modeling analysis of existing control measures showed that attainment could not be reached by December 21, 2001. A shortfall of a 16.4% reduction in PM_{10} concentration was identified. Consequently, a rigorous planning effort was conducted to develop 77 additional control measures, which included revising Maricopa County's Rule 310. The serious PM_{10} nonattainment area plan was submitted to EPA on July 9, 1999.

On November 9, 1999, EPA determined that the serious PM_{10} nonattainment area plan could not be approved, because the plan assumed that Maricopa County's Rule 310 and Rule 310.01 would achieve 90% compliance by 2006. EPA believed that the compliance rate was unrealistic and that there was no strategy in the plan for reducing dust on private unpaved roads. To address the approvability issues, Maricopa County committed to revising Rule 310 and to strengthening the enforcement of Rule 310. A revised serious PM_{10} nonattainment area plan was submitted to EPA in February 2000.

EPA approved the revised serious PM_{10} nonattainment area plan in April 2002, contingent on the completion of three commitments by Maricopa County. The revisions to Appendix C address one of the commitments.

10. Modeling Information Used To Support Rule Revision:

Modeling information was not used to support revisions to Appendix C, because Appendix C is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document.

11. Evidence That Emissions Limitations Are Based On Continuous Emission Reduction Technology, Add-On Controls, Reformulated Materials, And/Or Industrial/Process Equipment Designs:

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). The emissions limitations and work practices standards required in Rule 310 include the most stringent measures from other states. For example, the control measures for trackout are potentially more stringent than South Coast's Rule 403; the control measures for bulk material transport are as stringent as the most stringent measures identified in Imperial County's Regulation VIII; the control measures for material spillage, erosion, and accumulation onto roadways are as stringent at South Coast's Rule 1186.

12. Identification Of Section/Paragraph In Rule That Contains Emission Limitations, Work Practice Standards, Averaging Times, Test Procedures And/Or Recordkeeping/Reporting Requirements:

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). Section 2 describes test methods for stabilization and Section 3 describes time averaged methods of visual opacity determination of emissions from dust generating operations.

Appendix C is associated with the following sections in Rule 310 (Fugitive Dust):

- Section 301 (Opacity Limitation For Dust Generating Operations)
- Section 302.3 (Stabilization Requirements For Dust Generating Operations-Open Area And Vacant Lot Or Disturbed Surface Area)
- Section 501 (Compliance Determination)
- Section 502 (Recordkeeping)

13. Compliance/Enforcement Strategies To Be Used To Determine Compliance (Including Frequency Of Inspection):

Appendix C is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document.

Implementation of an enhanced fugitive dust program includes public outreach/education, rule development, staffing, inspection frequency, policy development, enforcement plan development, and performance measures.

Rule 310 requirements are administered through a visual inspection program and/or a permit program that includes review of permits, inspection of work sites, performance of compliance test methods, and review of records and activities. Maricopa County's enforcement options include: compliance status notification, notice of violation, follow-up inspection/investigation, Department report, referral to County Attorney, review by Enforcement Officer, order of abatement by consent, order of abatement, civil complaint, notice to appear and complaint (criminal complaint), injunctive relief, photographs, videos, compliance inspection reports, correspondence, records, other applicable documentation, and analytical tests.

14. Special Economic/Technological Justifications For Deviations From EPA Policies (As Appropriate):

Appendix C does not deviate from EPA policies.

15. Other Comments:

Attached Support Documentation Includes The Following:

Appendix 1	Notice Of Proposed Rulemaking
Appendix 2	Agenda Form And Notice Of Final Rulemaking
Appendix 3	Notice Of Public Hearing
Appendix 4	Affidavit Of Publication
Appendix 5	Certified Excerpts From The Minutes Of The Board Of Supervisors' Public Hearing
Appendix 6	Final Adopted Version Of Rule

For EPA Use Only

SIP RULE REVISION IS: _____ **COMPLETE** _____ **INCOMPLETE**

	Name	Telephone Number
District Contact:	Jo Crumbaker	(602) 506-6705
State Contact:	Ira Domsky Mark Lewandowski	(602) 771-2365 (602) 771-2230
EPA Contact:		

State Submittal Date:

EPA SIP Enforceability Statement

1. APPLICABILITY

a. What sources are being regulated?

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). The provisions of Rule 310 apply to all dust generating operations. Dust generating operations include: any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes. The completeness checklist for Rule 310 is in a separate document.

b. What exemptions are provided?

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). Rule 310 does not apply to normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under the Maricopa County Air Pollution Control Regulations. The completeness checklist for Rule 310 is in a separate document.

c. What are the units of compliance?

The units of compliance are:
Opacity Test Method. The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved roads and unpaved parking lots. This method can only be conducted by an individual who has received certification as a qualified observer.
Silt Content Test Method. The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots. The higher the silt content, the more fine dust particles that are released when cars and trucks drive on unpaved roads and unpaved parking lots.
Visible Crust Determination. The purpose of this test method is to determine whether an open area or a vacant lot has a stabilized surface.
Determination Of Threshold Friction Velocity (TFV). The purpose of this test method is to determine whether an open area or a vacant lot has a stabilized surface.
Determination Of Flat Vegetative Cover. The purpose of this test method is to determine whether an open area or a vacant lot has a stabilized surface.
Determination Of Standing Vegetative Cover. The purpose of this test method is to determine whether an open area or a vacant lot has a stabilized surface.
Rock Test Method. The purpose of this test method is to examine the wind-resistance effects of rocks and other non-erodible elements on disturbed surfaces.
Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations. The purpose of this test method is to determine opacity of fugitive dust plumes from dust generating operations. The time-averaged regulation is any regulation that requires averaging visible emissions data to determine the opacity of visible emissions over a specific time period.

d. Is bubbling or averaging of any type allowed?

No.

e. If there is a redesignation, will this change the emission limitations?

No.

2. COMPLIANCE DATES

a. What is the compliance date?

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). Rule 310, Section 306 (Control Measures) requires the owner and/or operator of a dust generating operation to implement control measures before, after, and while conducting operations, including during weekends, after work hours, and on holidays, in accordance with Rule 310, Section 304.3 (Elements Of A Dust Control Plan) and Tables 1-21 of Rule 310. The completeness checklist for Rule 310 is in a separate document.

b. What is the attainment date?

PM_{10} Attainment Date:	December 31, 2006
Carbon monoxide Attainment Date:	December 31, 2000[1]
1-Hour Ozone Attainment Date:	November 15, 1999[2]
8-Hour Ozone Attainment Date:	2009

[1]On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.
[2]On May 16, 2001, the EPA finalized its finding of attainment for the Phoenix area for the 1-hour national air quality standard for ground-level ozone. The EPA has not yet re-designated the area to attainment with the 1-hour ozone standard. Arizona must first submit an air quality maintenance plan showing how the Phoenix area will maintain the 1-hour ozone standard for 10 years.

3. SPECIFICITY OF CONDUCT

a. What test method is required?

Appendix C describes procedures for the following test methods associated with Rule 310 (Fugitive Dust):

- Unpaved roads and unpaved parking lots opacity test method
- Silt content test method
- Stabilization limitations for open areas and vacant lots
- Time averaged methods of visual opacity determination of emissions from dust generating operations for fugitive dust emissions
- Time averaged methods of visual opacity determination of emissions from dust generating operations for non-continuous dust plumes caused by activities including bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes
- Time averaged methods of visual opacity determination of emissions from dust generating operations for continuous dust plumes caused by equipment and activities including graders, trenchers, paddlewheels, blades, clearing, leveling, and raking

b. What is the averaging time in the compliance test method?

Appendix C, Section 2 (Test Methods For Stabilization) states:
Unpaved Roads And Unpaved Parking Lots Opacity Test Method: The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved roads and unpaved parking lots. Make 2 observations per vehicle,

beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Record a total of 12 consecutive opacity readings. This will occur once 6 vehicles have driven on the source in the line of observation for which readings are taken. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour.

Silt Content Test Method: The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots. The higher the silt content, the more fine dust particles that are released when cars and trucks drive on unpaved roads and unpaved parking lots.

Stabilization Limitations For Open Areas And Vacant Lots: The purpose of this test method is to determine whether an open area or a vacant lot has a stabilized surface. Should a disturbed open area or vacant lot contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods listed below or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results.

- Visible crust determination
- Determination of threshold friction velocity (TFV)
- Determination of flat vegetative cover
- Determination of standing vegetative cover
- Rock test method

Appendix C, Section 3 (Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations) states:

For Fugitive Dust Emissions: These procedures are applicable for the determination of the opacity of fugitive dust emissions by a qualified observer. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. For storage piles, make opacity observations approximately 1 meter above the surface from which the plume is generated. The initial observations should begin immediately after a plume has been created above the surface involved. Observe the plume momentarily at 15-second intervals. For fugitive dust from earthmoving equipment, make opacity observations approximately 1 meter above the mechanical equipment generating the plume.

For Non-Continuous Dust Plumes Caused By Activities Including Bulk Material Loading/Unloading, Non-Conveyorized Screening, Or Trenching With Backhoes: Make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time. Record the distance from the equipment or path that is the identified initial fallout zone. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone. Make 2 observations per discrete activity, beginning with the first reading at zero seconds and the second reading at 5 seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Observe the plume briefly at zero seconds and then again at 5 seconds. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. Repeat observations until at least a total of 12 consecutive opacity readings have been recorded. The 12 consecutive readings must be take within the same period of observations but must not exceed 1 hour.

For Continuous Dust Plumes Caused By Equipment And Activities Including Graders, Trechers, Paddlewheels, Blades, Clearing, Leveling, And Raking: Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes. If there are multiple related sources or multiple related points of emissions of dust from a particular activity or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140° sector to the back. Record the distance from the equipment or path that is identified as the initial fallout zone. Opacity

readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone. Observations will be made every 10 seconds until at least 12 readings have been recorded. Observe the plume momentarily at 10-second intervals. Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 (Fugitive Dust).

4. RECORDKEEPING

a. What records are required to determine compliance?

Records required to determine compliance include:

Appendix C, Section 2 (Test Methods For Stabilization) states:
Unpaved Roads And Unpaved Parking Lots Opacity Test Method: The fugitive dust source location, source type, method of control used, observer's name, certification data and affiliation, a sketch of the observer's position relative to the fugitive dust source, the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the fugitive dust source, and color of the plume and type of background on the visible emission observation from both when opacity readings are initiated and completed.
Silt Content Test Method: Weigh the container with the material from the collector pan and record its weight. If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an unpaved parking lot, multiply the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample recorded earlier and multiply by 100 to estimate the percent silt content. Select another two routinely traveled portions of the unpaved road or unpaved parking lot and repeat this test method. Once the silt loading and percent silt content of the 3 samples have been collected and calculated, average the results together. If the average silt loading is less than 0.33 oz/ft^2, the surface is stable. If the average silt loading is greater than or equal to 0.33 oz/ft^2, then examine the average percent silt content. If the source is an unpaved road and the average percent silt content is 6% or less, the surface is stable. If the source is an unpaved parking lot and the average percent silt content is 8% or less, the surface is stable. If field test results are within 2% of the standard (for example, 4%-8% silt content on an unpaved road), it is recommended that 3 additional samples from the source be taken to an independent laboratory for silt content analysis.
Stabilization Limitations For Open Areas And Vacant Lots:
Visible crust determination: Where a visible crust exists, drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16-17 grams from a distance of 30 centimeters (one foot) directly above (at a 90° angle perpendicular to) the soil surface. Drop the ball three times within a survey area that measures 1 foot by 1 foot and that represents a random portion of the overall disturbed conditions of the site. The survey area shall be considered to have passed the Visible Crust Determination Test if at least two out of the three times that the ball was dropped, the results met the criteria in subsection 2.3.2 of this appendix. Select at least two other survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of subsection 2.3.2 of this appendix for all of the survey areas tested, then the site shall be considered to have passed the Visible Crust Determination Test and shall be considered sufficiently crusted. Repeat the visible crust test as often as necessary on each random portion of the overall conditions of the site for an accurate assessment.
Determination of threshold friction velocity (TFV): Estimate TFV for the sieve catch with the greatest volume using Table 1 of this appendix, which provides a correlation between sieve opening size and TFV. Collect at least three soil samples which represent random portions of the overall conditions of the site, repeat the above TFV test method for each sample and average the resulting TFVs together to determine the TFV uncorrected for

non-erodible elements. Select a survey area of 1 meter by 1 meter that represents a random portion of the overall conditions of the site. Where many non-erodible elements lie within the survey area, separate the non-erodible elements into groups according to size. For each group, calculate the overhead area for the non-erodible elements. Repeat this procedure on an additional two distinct survey areas that represent a random portion of the overall conditions of the site and average the results. Identify the correction factor for the percent cover of non-erodible elements. Multiply the TFV by the corresponding correction factor to calculate the TFV corrected for non-erodible elements.

Determination of flat vegetative cover: Pinpoint an area the size of a 3/32 inch diameter brazing rod or wooden dowel centered above each 1 foot interval mark along one edge of the tape. Count the number of times that flat vegetation lies directly underneath the pinpointed area at 1 foot intervals. Consistently observe the underlying surface from a 90° angle directly above each pinpoint on one side of the tape. Do not count the underlying surface as vegetated if any portion of the pinpoint extends beyond the edge of the vegetation underneath in any direction. If clumps of vegetation or vegetative debris lie underneath the pinpointed area, count the surface as vegetated, unless bare soil is visible directly below the pinpointed area. When 100 observations have been made, add together the number of times a surface was counted as vegetated. This total represents the percent of flat vegetation cover (e.g., if 35 positive counts were made, then vegetation cover is 35%). If the survey area that represents a random portion of the overall conditions of the site is too small for 100 observations, make as many observations as possible. Then multiply the count of vegetated surface areas by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 20 times within a total of 50 observations, divide 20 by 50 and multiply by 100 to obtain a flat vegetation cover of 40%. Conduct the line transect test method an additional two times on areas that represent a random portion of the overall conditions of the site and average results.

Determination of standing vegetative cover: Select a survey area that represents a random portion of the overall conditions of the site that is the shape of a square with sides equal to at least 10 times the average height of the vegetative structures. For smaller standing vegetation, select a survey area of three feet by three feet. Count the number of standing vegetative structures within the survey area. Count vegetation, which grows in clumps as a single unit. Where different types of vegetation exist and/or vegetation of different height and width exists, separate the vegetative structures with similar dimensions into groups. Count the number of vegetative structures in each group within the survey area. Select an individual structure within each group that represents the average height and width of the vegetation in the group. If the structure is dense (e.g., when looking at it vertically from base to top there is little or zero open air space within its perimeter), calculate and record its frontal silhouette area, according to Equation 6 of this appendix. Also, estimate the average height and width of the vegetation if the survey area is larger than nine square feet. Otherwise, calculate the frontal silhouette area. Then calculate the percent cover of standing vegetation.

Rock test method: Select a 1 meter by 1 meter survey area that represents the general rock distribution on the surface. (A 1 meter by 1 meter area is slightly greater than a 3 foot by 3 foot area.) Mark-off the survey area by tracing a straight, visible line in the dirt along the edge of a measuring tape or by placing short ropes, yard sticks, or other straight objects in a square around the survey area. Without moving any of the rocks or other elements, examine the survey area. Since rocks >3/8 inch (1 cm) in diameter are of interest, measure the diameter of some of the smaller rocks to a get a sense for which rocks need to be considered. Mentally group the rocks >3/8 inch (1 cm) diameter lying in the survey area into small, medium, and large size categories. Or, if the rocks are all approximately the same size, simply select a rock of average size and typical shape. Without removing any of the rocks from the ground, count the number of rocks in the survey area in each group and write down the resulting number. Without removing rocks, select one or two average-size rocks in each group and measure the length and width. Use either metric units or standard units. Using a calculator, multiply the length times the

width of the rocks to get the average dimensions of the rocks in each group. Write down the results for each rock group. For each rock group, multiply the average dimensions (length times width) by the number of rocks counted in the group. Add the results from each rock group to get the total rock area within the survey area. Divide the total rock area by two (to get frontal area). Divide the resulting number by the size of the survey area (make sure the units of measurement match), and multiply by 100 for percent rock cover. For example, the total rock area is 1,400 square centimeters, divide 1,400 by 2 to get 700. Divide 700 by 10,000 (the survey area is 1 meter by 1 meter, which is 100 centimeters by 100 centimeters or 10,000 centimeters) and multiply by 100. The result is 7% rock cover. If rock measurements are made in inches, convert the survey area from meters to inches (1 inch = 2.54 centimeters). Select and mark-off two additional survey areas and repeat the procedures. Make sure the additional survey areas also represent the general rock distribution on the site. Average the percent cover results from all three survey areas to estimate the average percent of rock cover. If the average rock cover is greater than or equal to 10%, the surface is stable. If the average rock cover is less than 10%, the surface may or may not be stable. Follow the procedures for the determination of threshold friction velocity (TFV) and use the results from the rock test method as a correction (i.e., multiplication) factor. If the rock cover is at least 1%, such rock cover helps to limit windblown dust. However, depending on the soil's ability to release fine dust particles into the air, the percent rock cover may or may not be sufficient enough to stabilize the surface. It is also possible that the soil itself has a high enough TFV to be stable without even accounting for rock cover.

Appendix C, Section 3 (Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations) states:
For Fugitive Dust Emissions: The name of the site, fugitive dust source type (i.e., pile, material handling (i.e., transfer, loading, sorting)), method of control used, observer's name, certification data and affiliation, a sketch of the observer's position relative to the fugitive dust source, the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive dust source, and color of the plume, and type of background on the visible emission observation from when opacity readings are initiated and completed.
For Non-Continuous Dust Plumes Caused By Activities Including Bulk Material Loading/Unloading, Non-Conveyorized Screening, Or Trenching With Backhoes: (1) location of dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any; (2) observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation; (3) time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and (4) color of the plume and type of background.

b. In what forms or units must records be kept?

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). Rule 310, Section 502 (Recordkeeping) requires the following:

Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

Any person who conducts dust generating operations that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water

applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

c. On what time basis must records be kept?

Appendix C describes procedures for test methods associated with Rule 310 (Fugitive Dust). Rule 310, Section 503 (Records Retention) requires the following:

Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least six months following the termination of the dust generating operation. Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least 1 year from the date such records were initiated. If a person has obtained a Title V Permit and is subject to the requirements of this rule, then such person shall retain records required by this rule for at least 5 years from the date such records are established.

COMPLETENESS CHECKLIST

1. **Agency:** Maricopa County Air Quality Department

2. **Submitted Rule:**

Number	Title	Adoption Date
Appendix F	Soil Designations	04/07/04

3. **EPA Analogous Approved Rule (Applicable SIP):**

No version of Appendix F is currently in the Maricopa County portion of the federally-approved SIP.

4. **State/District Authority For Adoption/Implementation:**

Arizona Revised Statutes (ARS) §49-406(G), ARS §49-479, and ARS §49-480

5. **Pollutants Regulated By Rule:**

PM_✓_, SO_x__, VOC__, NO_x__, CO__, Pb

6. **Identification Of Sources By Name Or Number/Location (City, County, Or District) Area's Attainment And Plan Status (Group By Size/Subcategory, If Necessary):**

Appendix F includes soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust).

PM_{10} Classification:	Serious (As Of June 1996)
Carbon Monoxide Classification:	Serious (As Of July 1996)[1]
1-Hour Ozone Classification:	Serious (As Of February 1998)[2]
8-Hour Ozone Classification:	Basic (As Of April 15, 2004)

[1]On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.
[2]On May 16, 2001, the EPA finalized its finding of attainment for the Phoenix area for the 1-hour national air quality standard for ground-level ozone. The EPA has not yet re-designated the area to attainment with the 1-hour ozone standard. Arizona must first submit an air quality maintenance plan showing how the Phoenix area will maintain the 1-hour ozone standard for 10 years.

7. **Summary Of Rule/Rule Changes:**

Appendix F is a new appendix to Maricopa County's Air Pollution Control Regulations and is associated with Rule 310 (Fugitive Dust). Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County.

Rule 310 (Fugitive Dust), originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious nonattainment area for PM_{10}, the Maricopa County Environmental Services Department (MCESD) helped develop a PM_{10} serious area nonattainment plan for the Arizona State Implementation Plan. The Environmental Protection Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County. Appendix F addresses one of the commitments.

Maricopa County committed to "research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310". This commitment addresses EPA's concerns that dust control plans lack source-specific criteria for varying dust control measures. A specific example the EPA gives is that of a

source engaged in grading or cut-and-fill earthmoving operations for a multi-acre project that chooses to comply with Rule 310 by applying water. Neither the rule nor the source's dust control plan establishes minimum criteria for the number and size of water trucks/water applications systems for any given size construction site or a ratio of earthmoving equipment to water trucks.

Maricopa County added new provisions to Rule 310, itself, and revised dust control plan forms and permit application forms to incorporate the proposed rule revisions and clarify the instructions and layout. In Rule 310, new requirements include:

- Dust control on all paved areas accessible to the public
- The presence of water sources on-site at projects 1 acre or larger, per amendments by the Board Of Supervisors. Water sources were originally proposed to be on-site at projects ½ acre or larger.
- Trackout control devices at sites two acres or larger, per amendments by the Board Of Supervisors. Trackout control devices were originally proposed at sites one acre or larger.
- More detailed recordkeeping
- Soil type statements for construction projects one acre or larger. In addition to soil type statements, shrink/swell potential statements were originally proposed. Per amendments by the Board Of Supervisors, the requirement for shrink/swell potential statements was removed.

New Appendix F addresses the soil statements. The appendix contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide soil test results but in the event soil test results are not available, the soil type maps may be used as default information on permit applications. Maricopa County is currently developing a guidance document outlining what types of control measures should be used for various soil characteristics.

8. Rule's Effect On Emissions:

Appendix F is associated with Rule 310 (Fugitive Dust).

The air quality modeling previously submitted to the EPA was revised to reflect a lower compliance rate (80%) for Rule 310. According to the revised air quality modeling, the committed measures in the revised serious PM_{10} nonattainment area plan are expected to result in attainment of both the 50 micrograms per cubic meter annual average PM_{10} standard and the 150 micrograms per cubic meter 24-hour PM_{10} standard in 2006. Specifically, the committed measures are expected to result in an annual PM_{10} concentration of 49.68 micrograms per cubic meter and a 24-hour PM_{10} concentration of 149.3 micrograms per cubic meter in 2006.

The single most effective control measure for modeling attainment of the annual average PM_{10} standard is strengthening and better enforcement of Rule 310. Maricopa County committed to hire additional inspectors. New inspectors will expand the geographic coverage and frequency of proactive inspection and will improve Maricopa County's response time to complaints. Also, Maricopa County's Rule 310 outreach and education program will assist in achieving maximum compliance by 2006.

The evaluation of the committed measures - those used for numeric credit and those which will improve air quality but are not used for numeric credit - are summarized below:

- It is assumed that PM_{10} emissions resulting from construction activities are 72% controlled in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- It is assumed that methods used to remove and/or control trackout form construction sites resulted in 72% control in 2006. Because the base case emissions were assumed to be 18% controlled, raising the control to 72% for 2006 will provide 66% control of the base case emissions for 2006.

- Assumptions related to the control of windblown emissions from construction sites were revised to be consistent with the assumptions related to control of construction-activity generated fugitive dust. It was assumed that construction sites on the regional scale used the following control measures equally: wind fences, chemical stabilizers, gravel, and watering. It was assumed that windblown emissions from construction sites were 70% controlled in 2006. Because the base case emissions were assumed to be 20% controlled, raising the control to 70% for 2006 will provide 62.4% control of the base case emissions for 2006.

- The acreage of construction activity that was used to estimate total construction emissions in the modeling inventory was based on the permitted acres of construction. Therefore, only emissions from permitted construction activities appear in the inventory and a rule penetration of 100% is appropriate for Rule 310 with regard to construction activities.

9. Demonstration That NAAQS/PSD Increments/RFP Demonstration Are Protected (As Appropriate):

Appendix F is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document.

In accordance with 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was initially classified as "moderate" for PM_{10} pollution. As a moderate nonattainment area, Maricopa County was required to submit to the EPA a moderate PM_{10} nonattainment area plan and to show attainment of the PM_{10} national ambient air quality standards (NAAQS) by December 31, 1994. Moderate PM_{10} nonattainment area plans were submitted to the EPA in 1991 and 1993.

The Maricopa County moderate PM_{10} nonattainment area, upon the EPA's findings, failed to attain the NAAQS by December 31, 1994. Consequently, on May 10, 1996, the EPA reclassified Maricopa County as a serious PM_{10} nonattainment area. Maricopa County was then required to submit a serious PM_{10} nonattainment area plan, which had to include Best Available Control Measures (BACM), measures designed to achieve the maximum degree of emissions reduction for PM_{10} sources. Maricopa County had to show attainment of the PM_{10} NAAQS by December 21, 2001.

Emission inventories and air quality modeling analysis of existing control measures showed that attainment could not be reached by December 21, 2001. A shortfall of a 16.4% reduction in PM_{10} concentration was identified. Consequently, a rigorous planning effort was conducted to develop 77 additional control measures, which included revising Maricopa County's Rule 310. The serious PM_{10} nonattainment area plan was submitted to the EPA on July 9, 1999.

On November 9, 1999, the EPA determined that the serious PM_{10} nonattainment area plan could not be approved, because the plan assumed that Maricopa County's Rule 310 and Rule 310.01 would achieve 90% compliance by 2006. The EPA believed that the compliance rate was unrealistic and that there was no strategy in the plan for reducing dust on private unpaved roads. To address the approvability issues, Maricopa County committed to revising Rule 310 and to strengthening the enforcement of Rule 310. A revised serious PM_{10} nonattainment area plan was submitted to the EPA in February 2000.

The EPA approved the revised serious PM_{10} nonattainment area plan in April 2002, contingent on the completion of three commitments by Maricopa County. Appendix F addresses one of the commitments.

10. Modeling Information Used To Support Rule Revision:

Modeling information was not used to support Appendix F, because Appendix F is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document.

11. Evidence That Emissions Limitations Are Based On Continuous Emission Reduction Technology, Add-On Controls, Reformulated Materials, And/Or Industrial/Process Equipment Designs:

Appendix F is a new appendix to Maricopa County's Air Pollution Control Regulations and is associated with Rule 310 (Fugitive Dust). Appendix F contains soil type descriptions and a map of soil textures throughout the Maricopa County. The emissions limitations and work practices standards required in Rule 310 include the most stringent measures from other states. For example, the control measures for trackout are potentially more stringent than South Coast's Rule 403; the control measures for bulk material transport are as stringent as the most stringent measures identified in Imperial County's Regulation VIII; the control measures for material spillage, erosion, and accumulation onto roadways are as stringent at South Coast's Rule 1186.

12. Identification Of Section/Paragraph In Rule That Contains Emission Limitations, Work Practice Standards, Averaging Times, Test Procedures And/Or Recordkeeping/Reporting Requirements:

Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Section 1 describes soils and Section 2 includes the soil map. Appendix F is associated with Rule 310 (Fugitive Dust), Section 304.6 (Elements Of A Dust Control Plan): "A Dust Control Plan shall contain, at a minimum, all of the following information: For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F".

13. Compliance/Enforcement Strategies To Be Used To Determine Compliance (Including Frequency Of Inspection):

Appendix F is associated with Rule 310 (Fugitive Dust), which strengthens the SIP by limiting the amount of PM_{10} emitted from all dust generating operations. The completeness checklist for Rule 310 is in a separate document. Implementation of an enhanced fugitive dust program includes public outreach/education, rule development, staffing, inspection frequency, policy development, enforcement plan development, and performance measures.

Rule 310 requirements are administered through a visual inspection program and/or a permit program that includes review of permits, inspection of work sites, performance of compliance test methods, and review of records and activities. Maricopa County's enforcement options include: compliance status notification, notice of violation, follow-up inspection/investigation, Department report, referral to County Attorney, review by Enforcement Officer, order of abatement by consent, order of abatement, civil complaint, notice to appear and complaint (criminal complaint), injunctive relief, photographs, videos, compliance inspection reports, correspondence, records, other applicable documentation, and analytical tests.

14. Special Economic/Technological Justifications For Deviations From EPA Policies (As Appropriate):

Appendix F does not deviate from EPA policies.

15. Other Comments:

Attached Support Documentation Includes The Following:

Appendix 1	Notice Of Proposed Rulemaking
Appendix 2	Agenda Form And Notice Of Final Rulemaking
Appendix 3	Notice Of Public Hearing
Appendix 4	Affidavit Of Publication
Appendix 5	Certified Excerpts From The Minutes Of The Board Of Supervisors' Public Hearing
Appendix 6	Final Adopted Version Of Rule

For EPA Use Only

SIP RULE REVISION IS:	_____ COMPLETE	_____ INCOMPLETE

	Name	Telephone Number
District Contact:	Jo Crumbaker	(602) 506-6705
State Contact:	Ira Domsky Mark Lewandowski	(602) 771-2365 (602) 771-2230
EPA Contact:		

State Submittal Date:

EPA SIP Enforceability Statement

1. APPLICABILITY

a. What sources are being regulated?

Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The provisions of Rule 310 apply to all dust generating operations. Dust generating operations include: any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes. The completeness checklist for Rule 310 is in a separate document.

b. What exemptions are provided?

Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). Rule 310 does not apply to normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under the Maricopa County Air Pollution Control Regulations. The completeness checklist for Rule 310 is in a separate document.

c. What are the units of compliance?

The unit of compliance in/with Appendix F is a statement disclosing which of the four designated texture(s) of soil is naturally present at or will be imported to the dust generating operation.

d. Is bubbling or averaging of any type allowed?

No.

e. If there is a redesignation, will this change the emission limitations?

No.

2. COMPLIANCE DATES

a. What is the compliance date?

The owner and/or operator of a dust generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre. A Dust Control Plan shall contain, at a minimum, all of the following information: For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

b. What is the attainment date?

PM_{10} Attainment Date:	December 31, 2006
Carbon monoxide Attainment Date:	December 31, 2000[1]
1-Hour Ozone Attainment Date:	November 15, 1999[2]
8-Hour Ozone Attainment Date:	2009

[1]On September 22, 2003, the EPA found that the Phoenix area has attained the carbon monoxide standards. Approval of the plan is pending.
[2]On May 16, 2001, the EPA finalized its finding of attainment for the Phoenix area for the 1-hour national air quality standard for ground-level ozone. The EPA has not yet re-designated the area to attainment with the 1-hour ozone standard. Arizona must first submit an air quality maintenance plan showing how the Phoenix area will maintain the 1-hour ozone standard for 10 years.

3. SPECIFICITY OF CONDUCT

a. What test method is required?

Appendix F does not contain test methods. Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The completeness checklist for Rule 310 is in a separate document.

b. What is the averaging time in the compliance test method?

Appendix F does not describe the averaging time in the compliance test method. Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The completeness checklist for Rule 310 is in a separate document.

4. RECORDKEEPING

a. What records are required to determine compliance?

Appendix F does not describe records required to determine compliance. Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The completeness checklist for Rule 310 is in a separate document.

b. In what forms or units must records be kept?

Appendix F does not describe what forms or units records must be kept. Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The completeness checklist for Rule 310 is in a separate document.

c. On what time basis must records be kept?

Appendix F does not describe what time basis records must be kept. Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Appendix F is associated with Rule 310 (Fugitive Dust). The completeness checklist for Rule 310 is in a separate document.

Appendix 1

NOTICE OF PROPOSED RULEMAKING
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
PREAMBLE

1. Sections affected	Rulemaking Action
Rule 310, all sections	Amend
Appendix C, section 3	Amend
Appendix F, all sections	New

2. Statutory Authority for the rulemaking:

Authorizing statutes: Arizona Revised Statutes, Title 49, Chapter 3, Article 3, Sections 479 and 4 80 (A.R.S. § 49-479, A.R.S. § 49-480)

Implementing statute: Arizona Revised Statutes, Title 49, Chapter 1, Article 1, Section 112 (A.R.S. § 49-112)

3. List of all previous notices appearing in the register addressing the proposed rule:

a. Notice of Rulemaking Docket Opening – Rule 310:
Volume #9 A.A.R. Issue #20, p. 1473, May 16, 2003

b. Notice of Rulemaking Docket Opening – Appendix C:
Volume #9 A.A.R. Issue #39, p. 4136, September 26, 2003

c. Notice of Rulemaking Docket Opening – Appendix F:
Volume #9 A.A.R. Issue #43, p. 4569, October 24, 2003

4. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name:	Brennan Curry Townsend or Jo Crumbaker
Address:	1001 N. Central Ave, Suite 695 Phoenix, AZ 85004
Phone Number:	602-506-6710 or 602-506-6705
Fax Number:	602-506-6179
Email Address:	bcurry@mail.maricopa.gov or jcrumbak@mail.maricopa.gov

5. An explanation of the rule, including the agency's reasons for initiating the rulemaking:

Rule 310, originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious non-attainment area for PM10, the Maricopa County Environmental Services Department (MCESD) helped develop a PM10 serious area non-attainment plan for the Arizona State Implementation Plan. The Environmental Protection Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County (See 65 Fed. Reg. 19964 (2000) and 67 Fed. Reg. 48717 (2002)). These proposed revisions to Rule 310, Appendix C and new Appendix F address the commitments.

Commitment #1: Maricopa County's first commitment was to "research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage." (65 Fed. Reg. 19964, 19980). The EPA requested this commitment to address its concern that the existing opacity standard and test method in Appendix C for earthmoving operations is not always sufficient to control construction site dust to BACM levels. Although the opacity test method was revised in the year 2000, the EPA believes that additional revisions are necessary to fully assure that fugitive dust is effectively controlled.

To meet this commitment, Maricopa County is proposing to amend Appendix C of the Maricopa County Air Pollution Control Regulations, which outlines test methods used for fugitive dust observations. After much field research with the co-operation of the EPA and Clark County, Nevada, the county is proposing to revise Section 3 of Appendix C by establishing test methods for non-continuous and continuous plumes from dust generating operations.

Commitment #2: Maricopa County's second commitment is to "research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310" (65 Fed. Reg. 19964, 19980). The second commitment addresses the EPA's concerns that dust control plans lack source-specific criteria for varying dust control measures. A specific example the EPA gives is that of a source engaged in grading or cut-and-fill earthmoving operations for a multi-acre project that chooses to comply with Rule 310 by applying water. Neither the rule nor the source's dust control plan establishes minimum criteria for the number and size of water trucks/water applications systems for any given size construction site or a ratio of earthmoving equipment to water trucks. (65 Fed. Reg. 19964, 19980).

Maricopa County is proposing to meet this commitment by adding new provisions to Rule 310, itself, and by revising dust control plan forms and permit application forms to incorporate the proposed rule revisions and clarify the instructions and layout. In Rule 310, new requirements include: dust control on all paved areas accessible to the public, the presence of water sources on-site at projects ½ acre or larger, trackout control devices at sites one acre or larger, more detailed recordkeeping, and soil type and shrink/swell potential statements for construction projects one acre or larger. New Appendix F is being proposed to address the soil statements required to meet this commitment. The appendix contains soil type descriptions and two maps – one of soil textures throughout the county and one of shrink/swell potentials throughout the county. Regulated sources should provide soil test results but in the event soil test results are not available, the soil type maps may be used as a default information on permit applications. Maricopa County is currently developing a guidance document outlining what types of control measures should be used for various soil characteristics.

Secondly, to meet this commitment, the county has revised dust control permit applications to more clearly request the information that is required in order to evaluate chosen control measures. With

this information provided up front, the county expects to be able to approve or disapprove dust control plans based on whether specified control measures will be effective at each unique site. A dust generating operation will not be able to obtain an earthmoving permit until a satisfactory dust control plan is submitted and approved by the Environmental Services Department.

Commitment #3: The county's third commitment is to "revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources." (65 Fed. Reg. 19964, 19980). This commitment addresses the EPA's concern that while Rule 310 currently contains acceptable recordkeeping requirements, a more specific recordkeeping requirement would help improve compliance.

To address this commitment, the county has already revised sample record keeping logs and made them widely available to regulated sources and the public. Additionally the county proposes to clarify the recordkeeping requirements listed in Section 500 of Rule 310 to reflect the changes to the sample forms. Changes to this section include providing examples of dust suppression activities for which recordkeeping is required.

Other revisions to this rule and appendices are proposed in order to improve clarity and fix typographical and formatting errors, so as to increase rule enforceability.

6. Demonstration of compliance with A.R.S. § 49-112:

Under A.R.S. § 49-479(c), a county may not adopt a rule that is more stringent than the rules adopted by the director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the requirements of A.R.S. § 49-112. Under that statute:

> When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:
>
> 1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
> 2. There is credible evidence that the rule, ordinance or other regulation is either:
>   (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible

(b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the County rule, ordinance or other regulation is equivalent to federal statutes or regulations.

A.R.S. § 49-112 (A).

MCESD is proposing to revise Rule 310, Appendix C and Appendix F in order to address a peculiar local condition: the designation of Maricopa County as a serious non-attainment area for PM10. Maricopa County is the only PM10 serious nonattainment area in Arizona, consequently stronger regulations must be adopted in this area to address a serious health threat. Because of this, the revision complies with A.R.S. § 49-112 (A)(1). Additionally because Rule 310 is part of the Arizona State Implementation plan for the control of PM10, the regulation is federally enforceable and changes are required under 40 C.F.R. 51.120 (c)(102) to effect enforceable commitments made by the county. Therefore the rule revisions are also made pursuant to A.R.S. § 49-112 (2).

7. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

   a. Maricopa County Particulate Control Measure Feasibility Study, January 24, 1997
      Prepared by: Sierra Research, Inc. Sacramento, CA
   b. San Joaquin Valley Particulate Control Final BACM Technological and Economic Feasibility Analysis, March 21, 2003
      Prepared by: Sierra Research, Inc. Sacramento, CA
   c. Air Quality Regulations and Construction Activities Dust Control Handbook, Clark County Nevada Department of Air Quality Management

   These publications are available at the Maricopa County Environmental Services Department building, see #4 above.

8. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision:
   Not applicable

9. The preliminary summary of the economic, small business, and consumer impact:

   Economic Impacts on Regulated Sources:
   Rule 310, Section 201, the definition of "Area Accessible to the Public" is now proposed in order to replace the definition of "Public Roadway." The new term will cover areas previously not included, such as paved parking lots accessible to the public. Because of the expansion of the "public access" theory, dust generating operations may have increased areas in which they have to use certain dust control measures. Maricopa County predicts that the number of projects that will be newly affected by

this change in terminology will be small. Additionally because of existing dust management requirements, it is expected that sources affected by this change have the necessary equipment to easily implement the new standard. Therefore only a slight economic impact is anticipated from this provision.

Rule 310, Section 304.6 proposes an additional requirement for construction projects one acre or larger to disclose, in their dust control plans, what types of soil are present at the project site and their shrink/swell potential. Many projects of this nature must test soil characteristics anyway in order to ensure the structural integrity of project designs and materials, and those that do not test soils may refer to the soil maps in Appendix F as default information. Because of the availability of soil information from test results and the Appendix F maps, the county feels that this requirement will pose no additional economic burden on the operations it applies to.

Rule 310, Section 308.3 proposes to modify the requirement for trackout control devices from disturbed work areas that are five acres or larger, to disturbed work areas that are one acre or larger. While this revision will increase the number of work sites that must now install a trackout control device, Maricopa County anticipates that this requirement will be wholly or partially offset by reductions in other dust control costs. For example, a trackout control device can obviate or reduce the need for both manual and mechanical street sweeping and any other methods of keeping roadways clean. Therefore this provision will only have a minimal, if any, net cost to regulated sources.

Rule 310, Section 308.7 proposes to change the requirement for water sources to be kept on-site at sites that are ½ acre or larger from the previous requirement of one acre or larger unless a visible crust is maintained or the soil is sufficiently damp. The existing section currently requires an overriding compliance with the 20% opacity standard, as does the proposed revision. In both cases, if a source has the soil in a moist enough state to prevent dust from becoming dislodged, no changes would have to be made to its water source placement. Therefore no significant economic impact is anticipated from this proposed change.

Rule 310, Sections 502.1 and 502.2 propose to clarify recordkeeping requirement by adding more detail about what types of records must be kept. Regulated sources are already required to document all control measures implemented; the proposed additional language does not add any new requirements, but rather simply clarifies the existing standard by giving examples. Therefore regulated sources will have no increased costs as a result of these proposed revisions.

Economic Impacts on County Resources:

The Air Quality division of the Maricopa County Environmental Services has extensive compliance and enforcement programs to handle fugitive dust emissions. Because these programs are well

established and well staffed, there will be only slight incremental costs to Maricopa County due to the projected costs that accrue for training, implementation, and enforcement of the new standards in Rule 310 and Appendix C and Appendix F.

Health Costs:

Because Maricopa County is a serious non-attainment area for PM10, which these proposed revisions address, it is imperative to consider the medical and social costs of failing to take steps toward the improvement of the air quality. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs – these include personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.
2. Work loss – this includes lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.
3. Increased costs for chores and caregiving – these include special caregiving and services that are not reflected in medical costs. These costs may occur because some health effects reduce the affected individual's ability to undertake some or all normal chores, and she or he may require extra care.
4. Other social and economic costs – these include restrictions on or reduced enjoyment of leisure activities, increased discomfort or inconvenience, increased pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rule impact reduction on small businesses:

A.R.S. § 41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in A.R.S. § 41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations." Because of the nature of the proposed revisions to Rule 310, Appendix C and Appendix F, small businesses will be affected only minimally.

Conclusion:

Because the proposed changes to Rule 310, Appendix C and Appendix F will essentially clarify requirements that already exist, there is only a minimal economic impact on regulated entities, county resources, small business and the public at large. Where new requirements are proposed, it is anticipated that these costs may be offset by reduced costs in other areas or that the new requirements simply incorporate practices that are already put in place. It is also important to note

that regulated sources may be encouraged by these revisions to use dust suppressants other than water in order to assure compliance with rule standards, and by doing so may save money in the long run.

10. Name and address of department personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name:	Brennan Curry Townsend or Jo Crumbaker
Address:	1001 N. Central Ave, Suite 695 Phoenix, AZ 85004
Phone Number:	602-506-6710 or 602-506-6705
Fax Number:	602-506-6179
Email Address:	bcurry@mail.maricopa.gov or jcrumbak@mail.maricopa.gov

11. The time, place and nature of the proceedings for the amendment of the rule:

Written comments will be accepted if received between the date of this publication and Friday December 5, 2003, 5:00 p.m. Written comments may be mailed or hand delivered to the Maricopa County Environmental Services Department (see #4 above). Written comments received during the comment period will be considered formal comments to the proposed rules and will be responded to in the Notice of Final Rulemaking.

An oral proceeding will be held Thursday December 4, 2003 at 9:00 am at the Maricopa County Environmental Services Department, suite 560 (see #4 above). All comments made at this oral proceeding will be considered formal comments and will be recorded and transcribed. All formal comments will be addressed in the Notice of Final Rulemaking.

12. Any other matters prescribed by the statute that are applicable to the specific agency or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

None

14. The full text of the rules follow:

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 310
FUGITIVE DUST ~~SOURCES~~
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Revised 07/13/88
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Revised 09/20/94
Revised 06/16/99
Revised 02/16/00

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310
FUGITIVE DUST ~~SOURCES~~

SECTION 100 - GENERAL

101 PURPOSE: No change

102 APPLICABILITY: The provisions of this rule shall apply to all dust generating operations except for those dust generating operations listed in Section 103. ~~: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and ARS §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not located at sources that require any permit under these rules.~~

103 EXEMPTIONS: The following are exempt from the requirements of this rule: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4, and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under these rules.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

201 AREA ACCESSIBLE TO THE PUBLIC – any area, whether publicly or privately owned, that the public may legally enter, or does commonly enter, including, but not limited to, roads, parking lots, access roads, driveways, alleys and easements.

~~201~~2 BULK MATERIAL - Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), earth, soil, dirt, mud, demolition debris, cotton, trash, cinders, pumice, rock, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete~~, which~~ that are capable of producing fugitive dust ~~at an industrial, institutional, commercial, governmental, construction, and/or demolition site.~~

~~202~~3 BULK MATERIAL HANDLING, STORAGE, AND/OR TRANSPORTING OPERATION - The use of equipment, haul trucks, and/or motor vehicles, ~~such as~~ including, but not limited to, the loading, unloading, conveying, transporting, piling, stacking, screening, grading, or moving of bulk materials~~, which~~ that are capable of producing fugitive dust ~~at an industrial, institutional, commercial, governmental, construction, and/or demolition site.~~

~~204 CARRYOUT/TRACKOUT – Any and all bulk materials that adhere to and agglomerate on the exterior surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen onto a paved public roadway.~~

204 CONTROL MEASURE - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust. Control measures include, but are not limited to:

204.1 Curbing.;

204.2 Paving.;

204.3 Pre-wetting.;

204.4 Applying dust suppressants.;

204.5 Physically stabilizing with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization.;

204.6 Limiting, restricting, phasing and/or rerouting motor vehicle access.;

204.7 Reducing vehicle speeds and/or number of vehicle trips.;

204.8 Limiting use of off-road vehicles on open areas and vacant lots.;

204.9 Utilizing work practices and/or structural provisions to prevent wind and water erosion onto paved ~~public roadways~~ areas accessible to the public;

204.10 Appropriately using dust control implements.;

204.11 Installing one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of a paved ~~public roadways.~~ area accessible to the public to control carry-out and trackout.;

204.12 Keeping open-bodied haul trucks in good repair, so that spillage may not occur from beds, sidewalls, and tailgates.;

204.13 Covering the cargo beds of haul trucks to minimize wind-blown dust emissions and spillage.

205 DISTURBED SURFACE AREA – No change

206 DUST CONTROL IMPLEMENT – No change

207 DUST CONTROL PLAN - A written plan describing all fugitive dust control measures.

208 DUST GENERATING OPERATION - Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and/~~or~~ playing on or maintaining a ~~ballfield~~ field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, nor any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

209 DUST SUPPRESSANT – No change

210 EARTHMOVING OPERATION – No change

211 FREEBOARD – No change

212 FUGITIVE DUST - The particulate matter~~, which is~~ not collected by a capture system~~, which~~ that is entrained in the ambient air, and ~~which~~ is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

213 GRAVEL PAD – A layer of washed gravel, rock, or crushed rock ~~which~~ that is at least one inch or larger in diameter, that is maintained at the point of intersection of a paved ~~public roadway~~ area accessible to the public and a work site entrance to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to leaving the work site.

214 GRIZZLY – No change

215 HAUL TRUCK - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as, but not limited to, trailers or other conveyances ~~which~~ that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

~~216~~ ~~INTERMITTENT SOURCE – A fugitive dust generating operation and/or activity that lasts for a duration of less than six consecutive minutes.~~

217~~6~~ MOTOR VEHICLE – No change

218~~7~~ NORMAL FARM CULTURAL PRACTICE – No change

219~~8~~ OFF-ROAD VEHICLE – No change

220~~19~~ OPEN AREAS AND VACANT LOTS - Any of the following described in ~~subs~~Section 220.1 through ~~subs~~Section 220.4 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one ~~vacant~~ open area or vacant lot.

220~~19~~.1 An unsubdivided or undeveloped tract of land adjoining a developed or a partially developed residential, industrial, institutional, governmental, or commercial area.

220~~19~~.2 A subdivided residential, industrial, institutional, governmental, or commercial lot, ~~which~~ that contains no approved or permitted buildings or structures of a temporary or permanent nature.

220~~19~~.3 A partially developed residential, industrial, institutional, governmental, or commercial lot.

220~~19~~.4 A tract of land, in the nonattainment area, adjoining agricultural property.

221~~0~~ OWNER AND/OR OPERATOR – The person responsible for obtaining an earthmoving permit under Rule 200, Section 305, or any person who owns, leases, operates, controls, or supervises a dust generating operation subject to the requirements of this rule.

222~~1~~ PAVE – No change

223~~2~~ PUBLIC ROADWAYS – No change

224~~3~~ ROUTINE – No change

225~~4~~ SILT– No change

225 TRACKOUT/CARRYOUT – Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

226 TRACKOUT CONTROL DEVICE - A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and a paved roadway area accessible to the public, that controls or prevents vehicular trackout.

227 UNPAVED HAUL/ACCESS ROAD – No change

228 UNPAVED PARKING LOT – No change

229 UNPAVED ROAD – No change

230 URBAN OR SUBURBAN OPEN AREA – No change

231 VACANT LOT – No change

232 VACANT PARCEL – No change

233 WIND-BLOWN DUST - Visible emissions from any disturbed surface area, which that are generated by wind action alone.

234 WIND EVENT – No change

235 WORK SITE – No change

SECTION 300 - STANDARDS

301 OPACITY LIMITATION FOR ~~FUGITIVE DUST SOURCES~~ DUST GENERATING OPERATIONS: The owner and/or operator of a ~~source engaging in dust generating operations~~ dust generating operation shall not allow visible fugitive dust emissions to exceed 20% opacity as tested by methods described in Appendix C of these rules, or 50% opacity at any given time as observed in a single opacity reading.

301.1 Wind Event: Exceedances of the opacity limit that occur due to a wind event shall constitute a violation of the opacity limit. However, it shall be an affirmative defense in an enforcement action if the owner and/or operator demonstrates all of the following conditions:

a. All control measures required were followed and 1 or more of the control measures in ~~Table 2 were~~ Tables 20 & 21 was applied and maintained;

b. The 20% opacity exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures;

c. The owner and/or operator compiled and retained records, in accordance with Section 502 (Recordkeeping) of this rule; and

d. The occurrence of a wind event on the day(s) in question is documented by records. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked.

301.2 No change

301.3 No change

302 STABILIZATION REQUIREMENTS FOR FUGITIVE DUST SOURCES:

302.1 Unpaved Parking Lot: The owner and/or operator of any unpaved parking lot shall ~~not allow~~ ensure visible fugitive dust emissions ~~to~~ do not exceed 20% opacity, and ~~either~~ shall ensure either one of the following:

a. ~~Shall not allow~~ silt loading ~~equal to or greater~~ is less than 0.33 oz/ft2 ;, or

b. ~~Shall not allow the~~ silt content ~~to~~ does not exceed 8%.

302.2 Unpaved Haul/Access Road:

a. The owner and/or operator of any unpaved haul/access road (whether including at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall not allow ensure visible fugitive dust emissions to do not exceed 20% opacity, and either shall ensure either one of the following:

1. ~~Shall not allow~~ silt loading ~~equal to or greater than~~ is less than 0.33 oz/ft2; , or

2. ~~Shall not allow the~~ silt content ~~to~~ does not exceed 6%.

b. The owner and/or operator of any unpaved haul/access road (including at a work site that is under construction or a work site that is temporarily or permanently inactive) ~~S~~shall, as an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this subsection ~~302.2(b) of this rule~~, the owner and/or operator must include, in a Dust Control Plan, the number of vehicles ~~traveled~~ travelling on the unpaved haul/access roads each day (i.e., number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

302.3 Open Area Aand Vacant Lot ~~O~~or Disturbed Surface Area: The owner and/or operator of an open area and/or vacant lot or any disturbed surface area on which no activity is occurring (~~whether~~ including at a work site that is under construction, at or a work site that is temporarily or permanently inactive) shall meet at least 1 of the

standards described in ~~subs~~Sections 302.3(a) through ~~subsection~~ 302.3(g) below, as applicable. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if ~~such inactive disturbed surface~~ the area is not maintained in a manner that meets at least 1 of the standards listed ~~described in subsection 302.3(a) through subsection 302.3(g)~~ below, as applicable.

a. Maintain a visible crust; ~~or~~

Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher; ~~or~~

b. Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; ~~or~~

c. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; ~~or~~

d. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; ~~or~~

f. Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; ~~or~~

g. Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

302.4 No change

303 DUST CONTROL PLAN REQUIRED

303.1 The owner and/or operator of a dust generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre, including both of the following situations:

a. When submitting an application for an earthmoving permit involving earthmoving operations that would equal or exceed 0.10 acre, and

b. Before commencing any routine dust generating operation at a site that has obtained or must obtain a Title V, Non-Title V, or general permit under Regulation II (permits and fees) of these rules.

Compliance with this section does not affect an owner and/or operator's responsibility to comply with the other standards of this rule. The Dust Control Plan shall describe all control measures to be implemented before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

303.~~1~~2 A Dust Control Plan shall, at a minimum, contain all the information described in Section 304 of this rule. The Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan is deemed to be a violation of this rule. Regardless of whether an approved Dust Control Plan is in place or not, the owner and/or operator of a ~~source~~ dust generating operation is still subject to all requirements of this rule at all times. In addition, the owner and/or operator of a source with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator is complying with the approved Dust Control Plan.

303.23 At least one primary control measure and one contingency control measure must be identified in the Dust Control Plan for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s)~~.~~. If the identified contingency control measure is effective to comply with all of the requirements of

this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule ~~which may obviate the requirement of submitting a revised Dust Control Plan~~.

303.~~3~~4 ~~The following subsections, subsection 303.3(a) and subsection 303.3(b) of this rule, describe the permit applications with which a Dust Control Plan must be submitted.~~

a. ~~If a person is required to obtain an Earthmoving Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any dust generating operation.~~

b. ~~If a person is required to obtain or has obtained a Title V Permit, a Non-Title V, or a General Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any routine dust generating operation.~~

303.45 A Dust Control Plan shall not be required for any of the following activities:

a. To play on or maintain a ~~ballfield~~ field used for non-motorized sports;

b. For landscape maintenance, which, for the purpose of this rule, does not include grading, trenching, nor any other mechanized surface disturbing activities.;

c. To establish initial landscapes or to redesign existing landscapes of legally-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, city parks, ~~and~~ county regional parks, ballfields, camp sites, and playgrounds at camp sites; hiking paths, horse trails, and bicycle paths~~, ballfields, playgrounds at camp sites, and camp sites, which are used exclusively for purposes other than travel by motor vehicles~~, that are used exclusively for purposes other than travel by motor vehicles.; ~~F~~(for the purpose of this rule, establishing initial landscapes or redesigning existing landscapes does not include grading, trenching, nor any other mechanized surface disturbing activities).

304 ELEMENTS OF A DUST CONTROL PLAN: A Dust Control Plan shall contain, at a minimum, all of the following information:

304.1 Name(s), address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust generating operation.

304.2 A drawing, on ~~at least~~ 8½" x 11" paper~~, which~~ that shows:

a. Entire project site/facility boundaries; ,

b. Acres to be disturbed with linear dimensions; ,

c. Nearest public roads; ,

d. North arrow; , and

e. Planned exit locations onto paved ~~public roadways~~ areas accessible to the public.

304.3 Control measures, or a combination thereof, to be applied to all actual and potential ~~fugitive dust sources~~ dust generating operations, before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

a. ~~At least one primary~~ All required control measures from Tables 1-21 and at least one contingency control measure must be identified, ~~from Table 1 of this rule~~, for all ~~fugitive dust sources~~ dust generating operations. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s),. If the identified contingency control measure(s) is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule ~~which may obviate the requirement of submitting a revised Dust Control Plan~~.

b. Alternatively, a control measure(s) that is not listed in ~~Table 1~~ Tables 1-21 of this rule may be chosen, provided that such control measure(s) is implemented to comply with the standard(s) described in Section 301 and Section 302 of this rule, as determined by the corresponding test method(s), as applicable, and ~~must~~ meets other applicable standard(s) set forth in this rule.

c. If complying with ~~subs~~Section 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access Roads) of this rule, the Dust Control Plan must include the number of vehicles traveled on the unpaved haul/access roads (~~i.e.,~~ including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

304.4 Dust suppressants to be applied, including all of the following product specifications or label instructions for approved usage:

a. Method, frequency, and intensity of application.;

b. Type, number, and capacity of application equipment.; and

c. Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.

304.5 Specific surface treatment(s) and/or control measures utilized to control material trackout and sedimentation where unpaved and/or access points join paved ~~public roadways~~ areas accessible to the public.

304.6 For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil and their shrink/swell potential described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

305 DUST CONTROL PLAN REVISIONS

305.1 If the Control Officer determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any ~~given fugitive dust source~~ dust generating operation still exceed standards in Section 301 and Section 302 of this rule, then the Control Officer shall issue a written notice to the owner and/or operator of ~~such source~~ the dust generating operation explaining such determination.

305.2 The owner and/or operator of ~~such source~~ a dust generating operation shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or operator is preparing revisions to the approved Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

306 CONTROL MEASURES

306.1 The owner and/or operator of a ~~source~~ dust generating operation shall implement control measures before, after, and while conducting ~~any dust generating~~ operations, including during weekends, after work hours, and on holidays~~.~~, ~~See~~ in accordance with ~~subs~~Section 304.3, Table 1, and Table 2 and Tables 1-21 of this rule.

306.2 For the purpose of this rule, any control measure that is implemented must ~~meet~~ achieve the applicable standard(s) described in Sections 301 and ~~in Section~~ 302 of this rule, as determined by the corresponding test method(s), as applicable, and must ~~meet~~ achieve other applicable standard(s) set forth in this rule.

306.3 Failure to comply with the provisions of Section 308 (Work Practices) of this rule, as applicable, and/or of an approved Dust Control Plan, is deemed a violation of this rule.

306.4 Regardless of whether a dust generating operation is in compliance with an approved Dust Control Plan, ~~is in place or not,~~ or there is no approved dust control

plan, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times. ~~In addition, the owner and/or operator of a dust generating operation with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator of a dust generating operation is complying with the approved Dust Control Plan.~~

307 PROJECT INFORMATION SIGN: For all sites with an earthmoving permit that are five acres or larger, ~~T~~the owner and/or operator ~~of a source~~ shall erect and maintain a project information sign at the main entrance, that is ~~visible to~~ readable by the public, ~~of all sites with an Earthmoving Permit that are five acres or larger~~. Such sign shall ~~be a minimum of four feet long by four feet wide,~~ have a white background, have black block lettering ~~which~~ that is at least four inches high, and shall contain at least all of the following information:

307.1 Project name and permit holder name; ~~and~~,

307.2 Earthmoving Permit number;,

307.23 Name and phone number of person(s) responsible for conducting the project;, and

307.34 Text stating: "Dust Complaints? Call Maricopa County Environmental Services Department (insert the current/accurate phone number for the complaint phone line)."

308 WORK PRACTICES: When engaged in the following specific activities, the owner and/or operator of a ~~source~~ dust generating operation shall comply with the following work practices in addition to implementing, as applicable, the control measures described in ~~Table 1~~ Tables 1-21 of this rule. ~~Such work practices shall be implemented to meet the standards described in Section 301 and Section 302 of this rule.~~

308.1 Bulk Material Hauling Off-Site Onto Paved Public Roadways Areas Accessible to the Public: Not withstanding other sections of this rule, the owner and/or operator of a dust generating operation and the owner and/or operator of a haul truck shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); ~~and~~

c. Cover all haul trucks with a tarp or other suitable closure; and

d. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

308.2 Bulk Material Hauling On-Site Within T~~t~~he Boundaries O~~o~~f The Work Site: When crossing a ~~public roadway~~ paved area accessible to the ~~public~~ upon which the ~~public is allowed to travel~~ while construction is underway, the owner and/or operator of a dust generating operation shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in ~~Table 1 (Trackout 1J, 2J, 3J)~~ Table 17 of this rule.

308.3 ~~Spillage,~~ Trackout, Carry-Out, Spillage, and/or Erosion~~, And/Or Trackout~~: The owner and/or operator of a dust generating operation shall do all of the following:

a. Install, maintain and use a suitable trackout control device (E~~e~~xamples of trackout control devices are described in ~~Table 1 (Trackout 1J, 2J, 3J)~~ Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such ~~work site~~ operation at all exits onto a paved ~~public roadway~~ areas accessible to the public from both of the following:

(1) ~~From~~ all work sites with a disturbed surface area of ~~five~~ one acres or larger.~~,~~ and

(2) ~~From~~ all work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day.

b. Clean_up ~~spillage,~~ trackout, carry-out, spillage, and/or erosion, ~~and/or trackout~~ on the following time-schedule:

(1) Immediately, or within 30 minutes of when ~~spillage,~~ trackout, carry-out, ~~and/or trackout~~ or spillage extends a cumulative distance of 50 linear feet or more; ~~or~~ and

(2) At the end of the workday, ~~when~~ for all other ~~spillage,~~ trackout, carry-out, spillage, and/or erosion ~~and/or trackout, are other than the spillage, carry-out, erosion, and/or trackout described above, in subsection 308.3(b)(1) of this rule~~.

308.4 Unpaved Haul/Access Roads: The owner and/or operator of a dust generating operation shall ~~i~~implement ~~1~~ one or more control measure(s) described in ~~Table 1 (Unpaved Haul/Access Roads 1C through 5C)~~ Table 3 – Unpaved Haul/Access Roads of this rule, ~~before engaging in the use of~~ using or ~~in the maintenance of~~ maintaining unpaved haul/access roads.

308.5 Easements, Rights-Of-Way, and Access Roads for Utilities (Electricity, Natural Gas, Oil, Water, and Gas Transmission) Associated with Sources that have a Non-Title V Permit, a Title V Permit, and/or a General Permit under These Rules – the owner and/or operator of a dust generating operation shall do at least one of the following:

a. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day per road; ~~or~~

b. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or

c. Implement control measures, as described in ~~Table 1 (Unpaved Haul/Access Roads 1C through 5C)~~ Table 3 – Unpaved Haul/Access Roads of this rule.

308.6 Open Storage Piles: For the purpose of this rule, an open storage pile is any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-96A or other equivalent method approved in writing by the Control Officer and the Administrator of EPA, that the silt content is less than 5%. The owner and/or operator of such dust generating operation shall comply with all of the following:

a. During stacking, loading, and unloading operations, apply water, as necessary, to maintain compliance with Section 301 of this rule; ~~and~~

b. During stacking, loading, and unloading operations, empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping; and

~~b.~~c. When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:

(1) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; ~~or~~

(2) Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods ~~as~~ approved by the Control Officer and the Administrator of EPA. For areas ~~which~~ that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; ~~or~~

(3) Meet one of the stabilization requirements described in ~~subs~~Section 302.3 of this rule; or

(4) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this subsection, ~~subsection 308.6(b)(4)~~, the owner/operator must also implement either ~~subs~~Section 308.6(b)(c)(2) or ~~subs~~Section 308.6(b)(c)(3) above.

308.7 Soil Moisture ~~On Disturbed Surface Areas 1 Acre Or Larger~~: If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earthmoving operations on disturbed surface areas ~~1 acre~~ ½ acre or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

308.8 Weed Abatement ~~B~~by Discing ~~O~~or Blading: The owner and/or operator of a dust generating operation shall comply with all of the following during weed abatement procedures by discing or blading:

a. Apply water before weed abatement by discing or blading occurs; and

b. Apply water while weed abatement by discing or blading is occurring; and

c. Either

(1) Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with ~~subs~~Section 302.3 of this rule, after weed abatement by discing or blading occurs; or

(2) Establish vegetative ground cover in sufficient quantity, in compliance with ~~subs~~Section 302.3 of this rule, after weed abatement by discing or blading occurs.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 DUST CONTROL PLAN POSTING: The owner and/or operator of ~~a source~~ an earthmoving operation shall post a copy of the approved Dust Control Plan in a conspicuous location at the work site, within on-site equipment, or in an on-site vehicle, or shall otherwise keep a copy of the approved Dust Control Plan available on-site at all times. The owner and/or operator of a ~~source~~ dust generating operation that has been issued a Block Permit shall not be required to keep a copy of the 8½" by 11" site drawing according to section 304.2 of this rule ~~plot plan, an element of a Dust Control Plan, on-site~~.

402 No change

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: To determine compliance with this rule, the following test methods shall be ~~conducted~~ followed:

501.1 Opacity Observations:

a. Dust Generating Operations: Opacity observations of a source engaging in dust generating operations shall be conducted in accordance with Appendix C, Section 3 (Time Averaged Methods of Visual Opacity Determination of Emissions from Dust Generating Operations) ~~(Visual Determination Of Opacity Of Emissions From Sources For Time-Averaged Regulations) of these rules, except opacity observations for intermittent sources shall require 12 rather than 24 consecutive readings at 15 second intervals for the averaging time~~.

b. Unpaved Parking Lot: Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

c. Unpaved Haul/Access Road: Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

501.2 No change

502 RECORDKEEPING:

502.1 Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

502.2 Any person who conducts dust generating operations ~~which~~ that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

502.3 Upon verbal or written request by the Control Officer, the log or the records and supporting documentation shall be provided within 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

503 RECORDS RETENTION: No change

504 TEST METHODS ADOPTED BY REFERENCE: No change

~~TABLE 1~~

~~SOURCE TYPE AND CONTROL MEASURES~~
~~Vehicle Use In Open Areas And Vacant Lots:~~ ~~1A Restrict trespass by installing signs.~~ ~~2A Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.~~
~~Unpaved Parking Lots:~~ ~~1. 1B Pave.~~ ~~2B Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.1 of this rule.~~ ~~3B Apply a suitable dust suppressant, in compliance with subsection 302.1 of this rule.~~
~~Unpaved Haul/Access Roads: (The control measures listed below (1C-5C) are required work practices, per subsection 308.4 of this rule.)~~ ~~1C Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day.~~ ~~/ater, so that the surface is visibly moist and subsection 302.2 of this rule is met.~~ ~~3C Pave.~~ ~~4C Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.2 of this rule.~~ ~~5C Apply a suitable dust suppressant, in compliance with subsection 302.2 of this rule.~~
~~Disturbed Surface Areas:~~ ~~Pre-Activity:~~ ~~1D Pre-water site to the depth of cuts.~~ ~~2D Phase work to reduce the amount of disturbed surface areas at any one time.~~ ~~During Dust Generating Operations:~~ ~~3D Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule.~~ ~~4D Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content.~~ ~~5D Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways~~

or urban areas that reduce the amount of wind blown material leaving a site. If constructing fences or wind barriers, must also implement 3D or 4D above.

Temporary Stabilization During Weekends, After Work Hours, And On Holidays:

6D Apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

7D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

8D Restrict vehicular access to the area, in addition to either of the control measures described in 6D and 7D above.

Permanent Stabilization (Required Within 8 Months Of Ceasing Dust Generating Operations):

9D Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions, in compliance with subsection 302.3 of this rule.

10D Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

11D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

Open Areas And Vacant Lots:

1E Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

2E Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

3E Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

Control measures 1F – 1M below are required work practices and/or methods designed to meet the work practices, per Section 308 (Work Practices) of this rule.

Bulk Material Handling Operations And Open Storage Piles:

During Stacking, Loading, And Unloading Operations:

1F Apply water as necessary, to maintain compliance with Section 301 of this rule; and

When Not Conducting Stacking, Loading, And Unloading Operations:

2F Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or

3F Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

4F Meet the stabilization requirements described in subsection 302.3 of this rule; or

5F Construct and maintain wind barriers, storage silos, or a three sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing 5F, must also implement 3F or 4F above.

Bulk Material Hauling/Transporting:

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site When Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway:

1G Load all haul trucks such that the freeboard is not less than 3 inches when crossing a public roadway upon which the public is allowed to travel while construction is underway; and

2G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

3G Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 1 (Trackout 1J, 2J, 3J) of this rule; and

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site But Not Crossing A Public

Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway: 4G Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; or 5G Apply water to the top of the load such that the 20% opacity standard, as described in Section 301 of this rule, is not exceeded, or cover haul trucks with a tarp or other suitable closure. Off-Site Hauling/Transporting Onto Paved Public Roadways: 6G Cover haul trucks with a tarp or other suitable closure; and 7G Load all haul trucks such that the freeboard is not less than 3 inches; and 8G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and 9G Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.
Cleanup Of Spillage, Carry Out, Erosion, And/Or Trackout: 1H Operate a street sweeper or wet broom with sufficient water, if applicable, at the speed recommended by the manufacturer and at the frequency(ies) described in subsection 308.3 of this rule; or 2H Manually sweep-up deposits.
Trackout: 1J Install a grizzly or wheel wash system at all access points. 2J At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep. 2. 3J Pave starting from the point of intersection with a paved area accessible to the public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
Weed Abatement By Discing Or Blading: 1K Pre-water site and implement 3K or 4K below. 2K Apply water while weed abatement by discing or blading is occurring and implement 3K or 4K below. 3K Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs; or 4K Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs.
Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules: 1L Inside the PM10 nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day; or 2L Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day; or 3L Implement control measures, as described in Table 1 (Unpaved Haul/Access Roads-1C through 5C) of this rule.
Earthmoving Operations On Disturbed Surface Areas 1 Acre Or Larger: 1M If water is the chosen control measure, operate water application system (e.g., water truck), while conducting earthmoving operations on disturbed surface areas 1 acre or larger.

TABLE 2

Note: Control measures in [brackets] are to be applied only to sources outside the nonattainment area.

SOURCE TYPE AND WIND EVENT CONTROL MEASURES
Dust Generating Operations: 1A Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 miles per hour. If dust generating operations are ceased for the remainder of the work day, stabilization measures must be implemented; or 2A Apply water or other suitable dust suppressant twice [once] per hour, in compliance with Section 301 of this rule; or 3A Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined

~~by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or~~

~~4A Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind-blown material leaving a site. If implementing 4A, must also implement 2A or 3A above.~~

~~Temporary Disturbed Surface Areas (After Work Hours, Weekends, Holidays):~~

~~1B Uniformly apply and maintain surface gravel or dust suppressants, in compliance with subsection 302.3 of this rule; or~~

~~2B Apply water to all disturbed surface areas three times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of four times per day; or~~

~~3B Apply water on open storage piles twice [once] per hour, in compliance with subsection 302.3 of this rule; or~~

~~4B Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or~~

~~3. 5B Utilize any combination of the control measures described in 1B, 2B, 3B, and 4B above, such that, in total, these control measures apply to all disturbed surface areas.~~

Table 1
Vehicle Use in Open Areas and Vacant Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Restrict trespass by installing signs; or
   2. Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.

Table 2
Unpaved Parking Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Pave;
   2. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with section 302.1 of this rule; or
   3. Apply a suitable dust suppressant in compliance with Section 302.1 of this rule.

b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h. on the site.

Table 3
Unpaved Haul/Access Roads

a. An Owner and/or operator must implement one of the following control measures:
   1. Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day;
   2. Apply water, so that the surface is visibly moist in compliance with Section 302.2 of this rule;
   3. Pave;
   4. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with section 302.2 of this rule; or
   5. Apply a suitable dust suppressant, in compliance with Section 302.2 of this rule.

Table 4 Open Areas and Vacant Lots
a. An owner and/or operator must implement one of the following control measures to comply with section 302.3 of this rule: 1. Pave, apply gravel, or apply a suitable dust suppressant; 2. Establish vegetative ground cover in sufficient quantity; or 3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 5 Disturbed Surface Areas – Pre-Activity Work Practices
a. Before activity begins, an owner and/or operator must implement one of the following control measures: 1. Pre-water site to depth of cuts, allowing time for penetration; or 2. Phase work to reduce the amount of disturbed surface areas at any one time.

Table 6 Disturbed Surface Areas – Work Practices During Operations
a. During operations, an owner and/or operator must implement one of the following control measures: 1. Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule; 2. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or 3. Implement (a)(1) or (a)(2) above and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of windblown material leaving a site. b. Suggested additional control measure for contingency plans: 1. Limit vehicle speeds to 15 m.p.h. on the work site.

Table 7 Disturbed Surface Areas – Temporary Stabilization (up to Eight Months) During Weekends, After Work Hours, and on Holidays
a. An owner and/or operator must implement one of the following control measures to comply with section 302.3 of this rule: 1. Pave, apply gravel, or apply a suitable dust suppressant; 2. Establish vegetative ground cover in sufficient quantity; or 3. Implement (a)(1) or (a)(2), above, and restrict vehicular access to the area.

Table 8 Disturbed Surface Areas – Permanent Stabilization (Required within Eight Months of Ceasing Dust Generating Operations)
a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule: 1. Pave, apply gravel, or apply a suitable dust suppressant; 2. Establish vegetative ground cover in sufficient quantity; or 3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 9 Blasting Operations
a. An owner and/or operator must implement all of the following control measures: 1. If wind gusts above 25 mph, discontinue blasting; and 2. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

Table 10 Demolition Activities
a. An owner and/or operator must implement all of the following control measures: 1. Stabilize demolition debris. Apply water to debris immediately following demolition activity; and 2. Stabilize surrounding area immediately following demolition activity. Water all disturbed soil surfaces to establish crust and prevent wind erosion of soil. b. Suggested additional control measure for contingency plans: 1. Thoroughly clean blast debris from paved and other surfaces following demolition activity.

Table 11 Bulk Material Handling Operations – Work Practices During Stacking, Loading and Unloading Operations
a. An owner and/or operator must implement all of the following control measures: 1. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping; 2. Implement either one of the following control measures: a. Spray material with water prior to stacking, loading and unloading, and while stacking, loading, and unloading, or b. Spray material with a dust suppressant other than water prior to stacking, loading and unloading, and while stacking, loading, and unloading.

Table 12 Open Storage Piles
a. An owner and/or operator must implement one of the following control measures: 1. Cover open storage piles with tarps, plastic, or other material such that the coverings will not be dislodged by wind; 2. Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent method as approved by the Control Officer and the Administrator of the EPA; or for areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent method approved by the Control Officer and the Administrator of the EPA, maintain at least 70% of the soil moisture content; 3. Meet the stabilization requirements described in Section 302.3 of this rule; or 4. Implement (a)(2) or (a)(3), above, and construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. b. Suggested additional control measures for contingency plans: 1. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate. 2. Remove material from the downwind side of the storage pile when safe to do so.

Table 13 Bulk Material Hauling/Transporting – Within the Boundaries of the Work Site when Crossing a Paved Area Accessible to the Public While Construction is Underway
a. An owner and/or operator must implement all of the following control measures: 1. Load all haul trucks such that the freeboard is not less than 3 inches when crossing a paved area accessible to the public while construction is underway; 2. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); 3. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site; 4. Spray material with water prior to loading and spray material with water while loading. b. Suggested additional control measure for contingency plans: 1. Limit vehicle speeds to 15 m.p.h. on the work site.

Table 14 Bulk Material Hauling/Transporting – When On-Site Hauling/Transporting Within the Boundaries of the Worksite but Not Crossing a Paved Area Accessible to the Public
a. An owner and/or operator must implement one of the following control measures: 1. Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; 2. Apply water to the top of the load in compliance with Section 301 of this rule; or 3. Cover haul trucks with a tarp or other suitable closure.

Table 15 Bulk Material Hauling/Transporting – Off-Site Hauling/Transporting onto Paved Areas Accessible to the Public
a. An owner and/or operator must implement all of the following control measures: 1. Cover haul trucks with a tarp or other suitable closure; 2. Load all haul trucks such that the freeboard is not less than 3 inches; 3. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and 4. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Table 16 Clean Up of Trackout, Carry Out, Spillage and Erosion
a. An owner and/or operator must implement one of the following control measures: 1. Operate a street sweeper or wet broom with sufficient water, at the speed recommended by the manufacturer and at the frequency(ies) described in Section 308.4 of this rule; or 2. Manually sweep up deposits in compliance with Section 308.4 of this rule.

Table 17 Trackout Control
a. An owner and/or operator must implement all of the following control measures: 1. Immediately, or within 30 minutes, clean up trackout that exceeds 50 feet, all other trackout must be cleaned up at the end of the workday; and 2. In accordance with Section 308.4(a), prevent trackout by implementing one of the

following control measures:

i. At all access points, install a grizzly or wheel wash system

ii. At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep, in compliance with Section 213 of this rule

iii. Pave starting from the point of intersection with a paved area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet

b. Suggested additional control measures for contingency plans:

1. Clearly establish and enforce traffic patterns to route traffic over selected trackout control devices;
2. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes; and
3. Pave construction activity roadways as soon as possible.

Table 18
Weed Abatement by Discing or Blading

a. An owner and/or operator must implement all of the following control measures:

1. Pre-water site;
2. Apply water while weed abatement by discing or blading is occurring; and
3. Stabilize area by implementing either one of the following
   i. Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs; or
   ii. Establish vegetative ground cover in sufficient quantity, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs.

b. Suggested additional control measures for contingency plans:

1. Limit vehicle speeds to 15 m.p.h. during discing and blading operations.

Table 19
Easements, Rights-Of-Way, and Access Roads for Utilities (Electricity, Natural Gas, Oil, Water, and Gas Transmission) Associated with Sources that have a Non-Title V Permit, a Title V Permit, and/or a General Permit Under These Rules

a. An owner and/or operator must implement one of the following control measures:

1. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day per road;
2. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or
3. Implement control measures, as described in Table 3 (Unpaved Haul/Access Roads) of this rule.

Note: For Tables 20 & 21, control measures in [brackets] are to be applied only to dust generating operations outside the nonattianment area.

Table 20
Wind Event Control Measures –
Dust Generating Operations

a. An owner and/or operator must implement one of the following control measures:

1. Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 miles per hour, and if dust

generating operations are ceased for the remainder of the workday, stabilize the area;

2. Apply water or other suitable dust suppressant at least twice [once] per hour, in compliance with Section 301 of this rule;
3. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or
4. Implement (a)(2) or (a)(3), above, and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site.

Table 21
Wind Event Control Measures –
Temporary Disturbed Surface Areas (After Work Hours, Weekends, Holidays)

a. An owner and/or operator must implement one of the following control measures:
   1. Uniformly apply and maintain surface gravel or dust suppressants, in compliance with Section 302.3 of this rule;
   2. Apply water to all disturbed surface areas three times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of four times per day;
   3. Apply water on open storage piles at least twice [once] per hour, in compliance with section 302.3 of this rule; or
   4. Cover open storage piles with tarps, plastic, or other material such that wind will not remove the coverings.

b. Suggested additional control measures for contingency plans:
   1. Implement a combination of the control measures listed a(1) through a(4), above.

Adopted 06/16/99
Revised 02/16/00

APPENDIX C
FUGITIVE DUST TEST METHODS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX C
FUGITIVE DUST TEST METHODS

1. No change

2. No change

3. TIME AVERAGED METHODS OF VISUAL OPACITY DETERMINATION OF OPACITY OF EMISSIONS FROM ~~SOURCES FOR TIME-AVERAGED REGULATIONS~~ DUST GENERATING OPERATIONS

   3.1 Applicability – This method is applicable for the determination of opacity ~~determination of the opacity of emissions~~ of fugitive dust plumes from ~~sources of visible emissions for time-averaged regulations~~ dust generating operations. A time-averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

   3.2 No change

   3.3 No change

   3.3.1 No change

   ~~3.3.2 Procedures For Fugitive Dust Emissions. These procedures are applicable for the determination of the opacity of fugitive dust emissions by a qualified observer. The qualified observer should do the following:~~

   ~~a. Position. Stand at a position at least 5 meters from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make opacity observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the fugitive dust plume generated by mobile earthmoving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, if multiple plumes are involved, do not include more than one plume in the line of sight at one time.~~

   ~~b. Field Records. Record the name of the site, fugitive dust source type (i.e., pile, material handling (i.e., transfer, loading, sorting)), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also,~~

~~record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive dust source, and color of the plume and type of background on the visible emission observation from when opacity readings are initiated and completed.~~

~~c. Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. For storage piles, make opacity observations approximately 1 meter above the surface from which the plume is generated. The initial observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume, but instead observe the plume momentarily at 15-second intervals. For fugitive dust from earthmoving equipment, make opacity observations approximately 1 meter above the mechanical equipment generating the plume.~~

~~d. Recording Observations. Record the opacity observations to the nearest 5% every 15 seconds on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 15-second period. If a multiple plume exists at the time of an observation, do not record an opacity reading. Mark an "x" for that reading. If the equipment generating the plume travels outside of the field of observation, resulting in the inability to maintain the orientation of the sun within the 140° sector or if the equipment ceases operating, mark an "x" for the 15-second interval reading. Readings identified as "x" shall be considered interrupted readings.~~

~~e. Data Reduction For Time-Averaged Regulations. For each set of 12 or 24 consecutive readings, calculate the appropriate average opacity. Sets must consist of consecutive observations, however, readings immediately preceding and following interrupted readings shall be deemed consecutive and in no case shall two sets overlap, resulting in multiple violations.~~

3.3.2 To determine the opacity of non-continuous dust plumes caused by activities including, but not limited to, bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes:

a. Position: Stand at least 25 feet from the dust generating operation in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Choose a discrete portion of the operation for observation, such as the unloading point, not the whole operation. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Initial Fallout zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

c. Field Records: Note the following on an observational record sheet:

1. Location of dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;
2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation;

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and

4. Color of the plume and type of background.

d. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make two observations per activity, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

e. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. Repeat observations until you have recorded at least a total of 12 consecutive opacity readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed one hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

f. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules, unless any one reading is greater than 50% opacity.

3.3.3 To determine the opacity of continuous dust plumes caused by equipment and activities including but not limited to graders, trenchers, paddlewheels, blades, clearing, leveling, and raking

a. Position: Stand at least 25 feet from the dust generating operation to provide a clear view of the emissions with the sun oriented in the 140° sector to your back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction.

b. Dust Plume: Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes.

1. If a single piece of equipment is observed working, then all measurements should be taken off the resultant plume as long as the equipment remains within the 140° sector to the back.

2. If there are multiple related sources, or multiple related points of emissions of dust from a particular activity, or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140° sector to the back.

c. Initial Fallout Zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

d. Field Records: Note the following on an observational record sheet:

1. Location of the dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and

observer's estimated distance and direction to the location of the dust generating operation; and

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds).

e. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations at a point beyond the fallout zone. The observations should be made at the densest point. Observations will be made every 10 seconds until at least 12 readings have been recorded. Do not look continuously at the plume, but observe the plume momentarily at 10-second intervals. If the equipment generating the plume travels outside the field of observation or if the equipment ceases to operate, mark an "x" for the 10-second reading interval. Mark an "x" when plumes are stacked or doubled, either behind or in front, or become parallel to line of sight. Opacity readings identified as "x" shall be considered interrupted readings.

f. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 10-second period.

g. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules, unless any one reading is greater than 50% opacity.

3.4 No Change

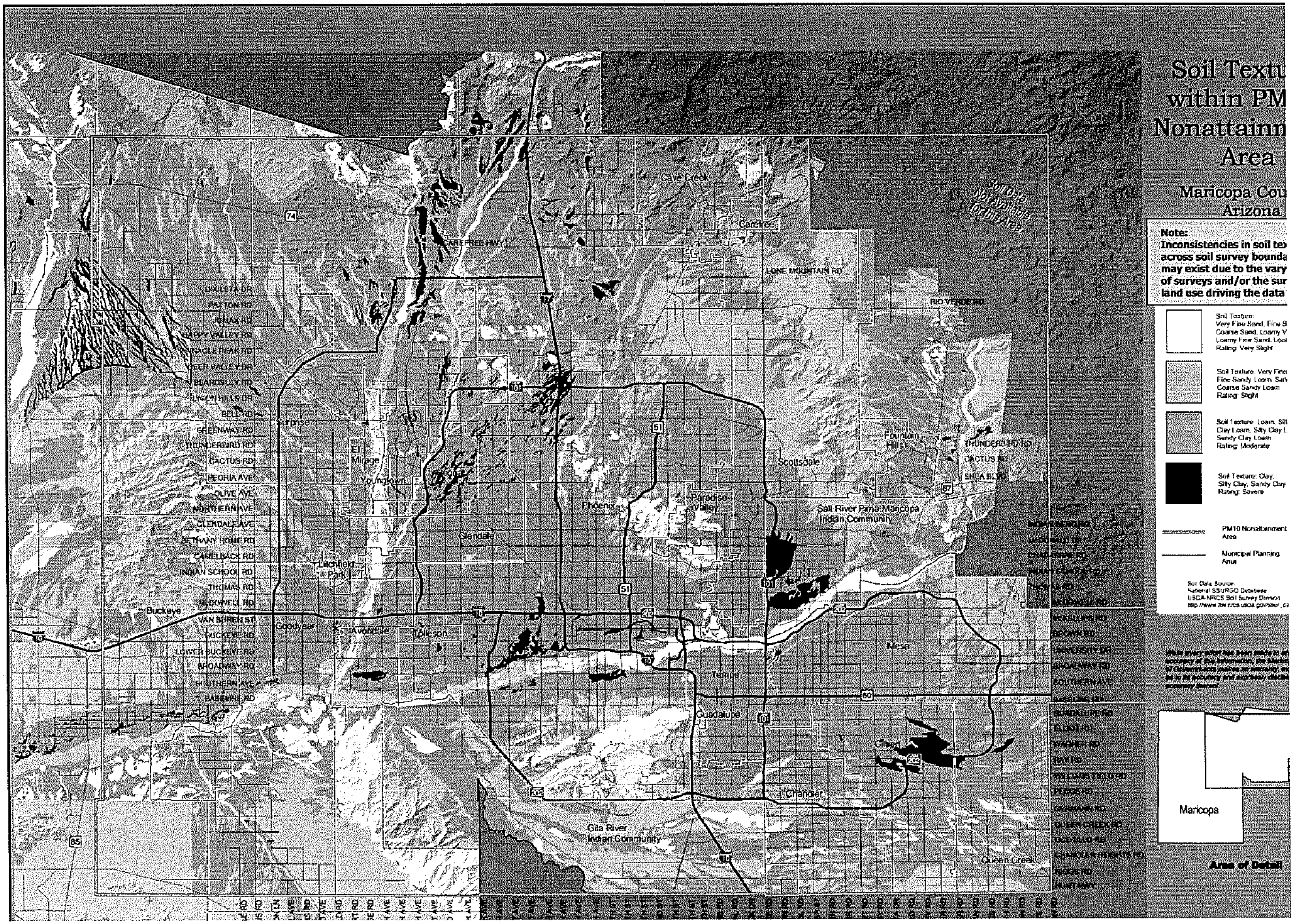
APPENDIX F
SOIL DESIGNATIONS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX F
SOIL DESIGNATIONS

1. SOIL DESCRIPTIONS
   a. VERY SLIGHT SOIL TEXTURE – includes very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand.
   b. SLIGHT SOIL TEXTURE – includes very fine sandy loam, fine sandy loam, sandy loam, course sandy loam.
   c. MODERATE SOIL TEXTURE – includes loam, silt loam, clay loam, silty clay loam, sandy clay loam
   d. SEVERE SOIL TEXTURE – includes clay, silty clay, sandy clay
2. SOIL MAPS


Soil Textu
within PM
Nonattainn
Area
Maricopa Cou
Arizona
Note:
Inconsistencies in soil te
across soil survey bounda
may exist due to the vary
of surveys and/or the sur
land use driving the data
Soil Texture: Very Fine Sand, Fine S Coarse Sand, Loamy V Loamy Fine Sand, Loa Rating: Very Slight
Soil Texture: Very Fine Fine Sandy Loam, San Coarse Sandy Loam Rating: Slight
Soil Texture: Loam, Silt Clay Loam, Silty Clay L Sandy Clay Loam Rating: Moderate
Soil Texture: Clay, Silty Clay, Sandy Clay Rating: Severe
PM10 Nonattainment Area
Municipal Planning Area
Soil Data Source: National SSURGO Database USDA NRCS Soil Survey Division
Soil Data Not Available for this Area
Maricopa
Area of Detail
Cave Creek
Carefree
CAREFREE HWY
LONE MOUNTAIN RD
RIO VERDE RD
Fountain Hills
Scottsdale
Paradise Valley
Salt River Pima-Maricopa Indian Community
Phoenix
Glendale
Surprise
El Mirage
Youngtown
Litchfield Park
Buckeye
Goodyear
Avondale
Tolleson
Mesa
Tempe
Guadalupe
Gilbert
Chandler
Gila River Indian Community
Queen Creek
DIXILETA DR
PATTON RD
JOMAX RD
HAPPY VALLEY RD
PINNACLE PEAK RD
DEER VALLEY DR
BEARDSLEY RD
UNION HILLS DR
BELL RD
GREENWAY RD
THUNDERBIRD RD
CACTUS RD
PEORIA AVE
OLIVE AVE
NORTHERN AVE
GLENDALE AVE
BETHANY HOME RD
CAMELBACK RD
INDIAN SCHOOL RD
THOMAS RD
MCDOWELL RD
VAN BUREN ST
BUCKEYE RD
LOWER BUCKEYE RD
BROADWAY RD
SOUTHERN AVE
BASELINE RD
SHEA BLVD
BROWN RD
UNIVERSITY DR
GUADALUPE RD
ELLIOT RD
WARNER RD
RAY RD
WILLIAMS FIELD RD
PECOS RD
GERMANN RD
QUEEN CREEK RD
OCOTILLO RD
CHANDLER HEIGHTS RD
RIGGS RD
HUNT HWY

Appendix 2

Agenda Activity:	Action	Agenda Number:	C-88-04-029-7-00
Department:	Environmental Services		
Category:	Chief Health Services Officer		
Contact:	Al Brown	Phone: 602-506-6712	Continued from:
Return to:	Russell Luder	Phone: 602-506-6703	
Location:	CAVCO Building		

Action Requested:
Set a public hearing, as required by Arizona Revised Statutes (ARS) §49-479(b), for March 17, 2004, to solicit comments on proposed revisions to Maricopa County Air Pollution Control Regulation Rule 310 (Fugitive Dust), Appendix C, and Appendix F and on submitting the rules as revisions to the (Arizona) State Implementation Plan (SIP). Following the public hearing, the Board is requested to adopt propose revisions to Maricopa County Air Pollution Control Regulations, Rule 310, Appendix C and Appendix F, and to submit the rules as revisions to the (Arizona) State Implementation Plan.

Complete description of action requested:
Maricopa County is proposing to revise Rule 310, Appendix C, and Appendix F to address 3 commitments made in the PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP). Other revisions to these rules are proposed in order to improve clarity and to fix typographical and formatting errors, so as to increase rule enforceability.

PERFORMANCE INFORMATION:
Program: Air Quality.
Activity: Air Quality Planning and Permitting.
Performance Measure: # of Air Quality Permit/Activity source reviews completed and permits issued.
Anticipated Results: By approving this agenda item the BOS will set a public hearing date to hear publi comments regarding a revision to Rule 310, Appendix C, and Appendix F to address 3 commitments made in the PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP).

An executive summary describing the rule revisions is attached.

Expenditure Impact by FY(s):
No Impact

Routing: Meeting Date: 02/04/2004	
Legend X=Pending A=Approved R=Rejected	
LEGAL	OMB
A	A

There are no Agenda Notes for agenda item C-88-04-029-7-00

Status for Agenda Number C-88-04-029-7-00

Dept Head Approval	Approved	ALBERT F. BROWN	1/15/04 7:01:48 PM
Chief Officer Approval	N/A		
OMB	Approved	DON O. TELLIS	1/22/04 9:43:53 AM
Legal	Approved	DANIEL R. BRENDEN	1/20/04 1:50:27 PM
County Administrator's Office	Approved	CHRISTINE M. PINUELAS	2/3/04 5:45:06 PM
Board of Supervisors	Approved	NORMA S. RISCH	02/04/2004

Agenda Activity:	Action	Agenda Number:	C-88-04-031-7-00
Department:	Environmental Services		
Category:	Chief Health Services Officer		
Contact:	Al Brown	Phone: 602-506-6617	Continued from: 03/17/2004
Return to:	Russell Luder	Phone: 602-506-6703	
Location:	CAVCO Building		

Action Requested:
Hold a public hearing, as required by Arizona Revised Statutes (ARS) §49-479(b), to solicit comments on proposed revisions to Maricopa County Air Pollution Control Regulation Rule 310 (Fugitive Dust), Appendix C, and Appendix F and on submitting the rules as revisions to the (Arizona) State Implementation Plan (SIP). Following the public hearing, the Board is requested to adopt proposed revisions to Maricopa County Air Pollution Control Regulations, Rule 310, Appendix C and Appendix F, and to submit the rules as revisions to the (Arizona) State Implementation Plan.

Amended Action:
Hold a public hearing, as required by Arizona Revised Statutes (ARS) §49-479(b), to solicit comments on proposed revisions to Maricopa County Air Pollution Control Regulation Rule 310 (Fugitive Dust), Appendix C, and Appendix F and on submitting the rules as revisions to the (Arizona) State Implementation Plan (SIP). Following the public hearing, the Board is requested to adopt proposed revisions to Maricopa County Air Pollution Control Regulations, Rule 310, Appendix C and Appendix F, and to submit the rules as revisions to the (Arizona) State Implementation Plan. AMENDMENTS: SEE RED-LINE BACKUP WHICH AMENDS SEC. 201,304.6, 308.3(A)(1), 308.7 & APPENDIX F

Complete description of action requested:
Maricopa County is proposing to revise Rule 310, Appendix C, and Appendix F to address 3 commitments made in the PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP). Other revisions to these rules are proposed in order to improve clarity and to fix typographical and formatting errors, so as to increase rule enforceability.

PERFORMANCE INFORMATION:
Program: Air Quality.
Activity: Air Quality Planning and Permitting.
Performance Measure: # of Air Quality Permit/Activity source reviews completed and permits issued.
Anticipated Results: By approving this agenda item the Department will be allowed to revise Rule 310, Appendix C, and Appendix F to address 3 commitments made in the PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP).

An executive summary describing the rule revisions is attached.

Expenditure Impact by FY(s):
No Impact

Routing: Meeting Date: 04/07/2004	
Legend X=Pending A=Approved R=Rejected	
LEGAL	OMB
A	A

There are no Agenda Notes for agenda item C-88-04-031-7-00

Status for Agenda Number C-88-04-031-7-00

NOTICE OF FINAL RULEMAKING
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
REGULATION III
RULE 310 – FUGITIVE DUST,
APPENDIX C - FUGITIVE DUST TEST METHODS,
APPENDIX F – SOIL DESIGNATIONS

PREAMBLE

1. Sections affected

	Rulemaking action
Rule 310, all sections	Amend
Appendix C, section 3	Amend
Appendix F, all sections	New

2. Statutory authority for the rulemaking:
   Authorizing statutes: Arizona Revised Statutes, Title 49, Chapter 3, Article 3, Sections 479 and 480 (A.R.S. § 49-479, A.R.S. § 49-480)
   Implementing statute: Arizona Revised Statutes, Title 49, Chapter 1, Article 1, Section 112 (A.R.S. § 49-112)

3. The effective date of the rules:
   Date of adoption: April 7, 2004

4. List of all previous notices appearing in the register addressing the proposed rules:
   a. Notice of Rulemaking Docket Opening – Rule 310:
      Volume #9 A.A.R. Issue #20, p. 1473, May 16, 2003
   b. Notice of Rulemaking Docket Opening – Appendix C:
      Volume #9 A.A.R. Issue #39, p. 4136, September 26, 2003
   c. Notice of Rulemaking Docket Opening – Appendix F:
      Volume #9 A.A.R. Issue #43, p. 4569, October 24, 2003
   d. Notice of Proposed Rulemaking – Rule 310, Appendix C, Appendix F:
      Volume #9 A.A.R. Issue #44, p. 4674, October 31, 2003

5. Name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name:	Johanna M. Kuspert or Jo Crumbaker
Address:	1001 N. Central Ave, Suite 695 Phoenix, AZ 85004
Phone Number:	602-506-3476 or 602-506-6705
Fax Number:	602-506-6179
Email Address:	jkuspert@mail.maricopa.gov or jcrumbak@mail.maricopa.gov

6. An explanation of the rule, including the department's reasons for initiating the rules:
   Rule 310, originally adopted in July 1988, is Maricopa County's rule for controlling fugitive dust emissions. Because Maricopa County is a serious nonattainment area for PM10, the Maricopa County Environmental Services Department (MCESD) helped develop a PM10 serious area nonattainment plan for the Arizona State Implementation Plan (SIP). The Environmental Protection Agency (EPA) approved the plan in April of 2002, contingent on the completion of three commitments by Maricopa County (See 65 Fed. Reg. 19964 (2000) and 67 Fed. Reg. 48717 (2002)). These revisions to Rule 310, Appendix C, and new Appendix F address the commitments.

   Commitment #1: Maricopa County's first commitment was to "research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage." (65 Fed. Reg. 19964, 19980). The EPA requested this commitment to address its concern that the

existing opacity standard and test method in Appendix C for earthmoving operations is not always sufficient to control construction site dust to BACM levels. Although the opacity test method was revised in the year 2000, the EPA believes that additional revisions are necessary to fully assure that fugitive dust is effectively controlled.

To meet this commitment, Maricopa County amended Appendix C of the Maricopa County Air Pollution Control Regulations, which outlines test methods used for fugitive dust observations. After much field research with the cooperation of the EPA and Clark County, Nevada, Maricopa County revised Section 3 of Appendix C by establishing test methods for non-continuous and continuous plumes from dust generating operations.

Commitment #2: Maricopa County's second commitment was to "research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310" (65 Fed. Reg. 19964, 19980). The second commitment addresses the EPA's concerns that dust control plans lack source-specific criteria for varying dust control measures. A specific example the EPA gives is that of a source engaged in grading or cut-and-fill earthmoving operations for a multi-acre project that chooses to comply with Rule 310 by applying water. Neither the rule nor the source's dust control plan establishes minimum criteria for the number and size of water trucks/water applications systems for any given size construction site or a ratio of earthmoving equipment to water trucks. (65 Fed. Reg. 19964, 19980).

Maricopa County added new provisions to Rule 310, itself, and revised dust control plan forms and permit application forms to incorporate the proposed rule revisions and clarify the instructions and layout. In Rule 310, new requirements include:

- Dust control on all paved areas accessible to the public;
- The presence of water sources on-site at projects 1 acre or larger;
- Trackout control devices at sites two acres or larger; and
- Soil type statements for construction projects one acre or larger.

New Appendix F addresses the soil statements required to meet Commitment #2. The appendix contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide soil test results but in the event soil test results are not available, the soil type map may be used as default information on permit applications. Maricopa County is currently developing a guidance document outlining what types of control measures should be used for various soil characteristics.

Secondly, to meet Commitment #2, Maricopa County revised dust control permit applications to more clearly request the information that is required in order to evaluate chosen control measures. With this information provided up front, Maricopa County expects to be able to approve or disapprove dust control plans based on whether specified control measures will be effective at each unique site. A dust generating operation will not be able to obtain an earthmoving permit until a satisfactory dust control plan is submitted and approved by the Environmental Services Department.

Commitment #3: Maricopa County's third commitment was to "revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources." (65 Fed. Reg. 19964, 19980). This commitment addresses the EPA's concern that while Rule 310 currently contains acceptable recordkeeping requirements, a more specific recordkeeping requirement would help improve compliance.

To address this commitment, Maricopa County had, prior to this rulemaking, revised sample record keeping logs and made them widely available to regulated sources and the public.

Additionally, in this rulemaking, Maricopa County clarified the recordkeeping requirements listed in Rule 310, Section 500 to reflect the changes to the sample forms. Changes to Section 500 include providing examples of dust suppression activities for which recordkeeping is required.

Other revisions to Rule 310 and appendices improve clarity, fix typographical and formatting errors, and increase rule enforceability.

7. Demonstration of compliance with A.R.S. § 49-112:

Under A.R.S. § 49-479(c), a county may not adopt a rule that is more stringent than the rules adopted by the director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the requirements of A.R.S. § 49-112. Under that statute:

When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:

1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
2. There is credible evidence that the rule, ordinance or other regulation is either:
   (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible
   (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the County rule, ordinance or other regulation is equivalent to federal statutes or regulations.

A.R.S. § 49-112 (A).

MCESD revised Rule 310, Appendix C, and Appendix F in order to address a peculiar local condition: The designation of Maricopa County as a serious nonattainment area for PM10. Maricopa County is the only serious nonattainment area for PM10 in Arizona; consequently stronger regulations must be adopted in this area to address a serious health threat. Because of this, the revision complies with A.R.S. § 49-112 (A)(1). Additionally because Rule 310 is part of the Arizona State Implementation Plan for the control of PM10, the regulation is federally enforceable and changes are required under 40 C.F.R. 51.120 (c)(102) to effect enforceable commitments made by Maricopa County. Therefore the rule revisions are also made pursuant to A.R.S. § 49-112 (2).

8. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

   a. Maricopa County Particulate Control Measure Feasibility Study, January 24, 1997
      Prepared by: Sierra Research, Inc. Sacramento, CA
   b. San Joaquin Valley Particulate Control Final BACM Technological and Economic Feasibility Analysis, March 21, 2003
      Prepared by: Sierra Research, Inc. Sacramento, CA
   c. Air Quality Regulations and Construction Activities Dust Control Handbook, Clark County Nevada Department of Air Quality Management

   These publications are available at the Maricopa County Environmental Services Department building. See #4 above.

9. Summary of the economic, small business, and consumer impact:

   Economic Impacts On Regulated Sources:

Collectively, construction site operations emissions (24.5%) and windblown emissions (2.5%) are the second largest contributor of PM10 emissions in the Phoenix area, according to the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10. Sources of fugitive dust emissions at construction sites include land clearing, earthmoving, excavating, construction, demolition, material handling, bulk material storage and/or transporting operations, material trackout or spillage onto paved roads, and vehicle use and movement on site (e.g., the operation of any equipment on unpaved surfaces, unpaved roads, and unpaved parking areas). Windblown emissions from disturbed surface areas and inactive storage piles on construction sites are also a source of fugitive dust. Emission reductions in 2006, the PM10 attainment date, are estimated as 66% reduction from construction dust and 66% reduction from construction trackout.

Over the past 5 years, violations of the annual PM10 standard have occurred routinely at 3 sites: (1) an urban site heavily impacted by transportation sources, (2) an urban fringe site heavily impacted by fugitive dust sources such as construction and agriculture, and (3) a site heavily impacted by industrial sources. These primary contributors to elevated PM10 emissions can be found throughout the Maricopa County nonattainment area and collectively number in the thousands. Population exposure to elevated levels of PM10 is estimated to be from 78,000 to 163,000. 84% of Maricopa County's population lives in areas where 10% or less of the land is open.

The Maricopa Association Of Governments was designated to serve as the Regional Air Quality Planning Agency to develop plans to address PM10, carbon monoxide, and ozone. On January 14, 2002, the EPA took final action to approve the revised 1999 Serious Area Particulate Plan for PM10 for the Maricopa County nonattainment area. The revised 1999 Serious Area Particulate Plan for PM10 demonstrates attainment by December 31, 2006. As approved, the plan contains approximately 77 committed control measures from state and local governments. All of the commitments are at least best available control measures (BACM) and, at most, most stringent measures (MSM). The key measures in the revised 1999 Serious Area Particulate Plan for PM10 used for the attainment demonstration include: strengthening and better enforcement of fugitive dust control rules regarding construction dust - 19.1% PM10 reduction; strengthening and better enforcement of fugitive dust control rules regarding trackout and paved road dust – 9.7% PM10 reduction; reducing particulate emissions from unpaved roads and alleys- 5.8% PM10 reduction , and reducing particulate emissions from unpaved parking lots – 1.8% PM10 reduction.

Maricopa County helped develop the revised 1999 Serious Area Particulate Plan for PM10 and agreed to three commitments: (1) to research and develop a standard(s) and test method(s) for earthmoving sources, considering our field research, that are enforceable and meet BACM requirements on stringency and source coverage, (2) to research, develop and incorporate additional requirements for dust suppression practices/equipment for construction activities into dust control plans and/or Rule 310, and (3) to revise the sample daily recordkeeping logs for new and renewed Rule 310 permits to be consistent with rule revisions and to provide sufficient detail documenting the implementation of dust control measures required by Rule 310 and the dust control plan. Distribute sample log sheets with issued permits and conduct outreach to sources.

The revisions to Rule 310, Appendix C, and new Appendix F address these commitments:

Rule 310, Section 201: The definition of "area accessible to the public" has been revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots. The revised definition of "area accessible to the public", as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004, is the product of Maricopa County's collaboration with small businesses to

design a definition that meets the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan.

Because of the expansion of the "public access" theory, dust generating operations may have increased areas in which they have to use certain dust control measures. Maricopa County predicts that the number of projects that will be newly affected by this change in terminology will be small. Additionally because of existing dust management requirements, it is expected that sources affected by this change have the necessary equipment to easily implement the new standard.

Rule 310, Section 304.6: An additional requirement for construction projects one acre or larger to disclose, in their dust control plans, what types of soil are present at the project site and what types of soil are to be imported, if necessary, onto the project site has been included in Rule 310. Many projects must test soil characteristics anyway in order to ensure the structural integrity of project designs and materials and/or to comply with the Arizona Pollutant Discharge Elimination System (AZPDES) program. Those projects that do not test soils may refer to the soil map in Appendix F as default information.

Rule 310 requires that activities on construction sites must meet a 20% opacity standard. Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, if research on the standards and test methods find problems with the existing opacity standard's enforceability, feasibility, or stringency for some or all earthmoving operations, Maricopa County must revise Rule 310 to modify the existing opacity test method to address the problems as warranted or adopt a new standard(s) and test method(s) to deal with any problems that cannot be addressed by modifying the opacity test method.

Maricopa County's commitment to research and develop standard(s) and test method(s) for earthmoving sources, considering the EPA's field research, that are enforceable and meet best available control measures (BACM) and most stringent measures (MSM) requirements on stringency and source coverage, addresses the EPA's concern that the existing opacity standard and test method for earthmoving operations may not always be sufficient to control construction site dust to BACM levels. By revising Appendix C, Maricopa County has revised the opacity test method to deal partially with this concern, but the EPA believes that additional standards/test methods are needed to fully assure that sources are effectively controlled. For example, it is unclear whether the test method can be effectively used when dust plumes are generated by heavy vehicles in "turn-around" areas that may be used only infrequently.

The EPA sponsored a field study in Phoenix to compare fugitive dust emissions from uncontrolled earthmoving activities and from earthmoving activities after water has been applied and to investigate various benchmarks for determining when an acceptable amount of dust control has been achieved. The purpose of the project was (1) to investigate the relative reduction in PM10 fugitive dust emissions from uncontrolled earthmoving activities when soil moisture content is increased through application of water and (2) to evaluate control strategies associated with this reduction. The technical approach centered on PM10 dustiness testing of Maricopa County (Phoenix area) soil samples taken from active construction sites to determine the relationship between PM10 emission potential and moisture content of the soil. Ultimately, it was intended that the relationship would be converted to PM10 control efficiency as a function of moisture addition above the dry soil moisture levels.

Per the "Analysis Of Moisture Effects On Emissions From Construction Activities" prepared by Midwest Research Institute in July 2000, the results of the project revealed that the PM10 emission potential of soils that are representative of Maricopa County construction sites can be reduced substantially by increasing the moisture content. For example, doubling the moisture content of the dry soil can reduce emissions by approximately 90%. However, the

dry soil found in the Maricopa County area is difficult to wet because of its hydrophobic nature. More than 2 weeks of continuous water application is required for penetration to a depth of several feet below the surface. Dry, spotty areas of un-watered soil in the path of large construction equipment can cause much of the dust problem. This condition is likely to occur if short-term watering is used as a means for raising soil moisture in areas where soil removal takes place. Summertime conditions are expected to produce challenging conditions for soil watering as a control method because of rapid soil drying. The soil moisture gradient is expected to be significantly higher under summer conditions; summer conditions quickly dry the uppermost soil layer, which is the most significant source of PM10. Therefore, more frequent water application will be required to achieve a control equivalent to that achieved in winter conditions.

Rule 310, Section 308: The requirement for trackout control devices from disturbed work areas that are 5 acres or larger has been modified to include disturbed work areas that are 2 acres or larger. The new threshold of 2 acres or larger, as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004, is the product of Maricopa County's collaboration with small businesses and has been designed to meet the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan.

While requiring trackout control devices from disturbed work areas that are 2 acres or larger increases the number of work sites that must now install a trackout control device, Maricopa County anticipates that this requirement will be wholly or partially offset by reductions in other dust control costs. For example, a trackout control device can obviate or reduce the need for both manual and mechanical street sweeping and any other methods of keeping roadways clean.

Maricopa County concluded from field observations and from a review of enforcement actions that smaller sites frequently have trackout problems. Many of those sites resolve their trackout problems by installing trackout control devices. Further, changing the threshold for requiring a trackout control device for disturbed work areas that are 2 acres or larger corresponds with the threshold in similar regulations - Phase II of the National Pollutant Discharge Elimination System (NPDES) storm water program and the Storm Water Pollution Prevention Plan (SWPPP). Effective March 10, 2003, these regulations now also apply to construction sites from 1 to 5 acres in size.

Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, paved road dust (which also includes trackout from construction sites) is fugitive dust that is deposited on a paved roadway and then is re-entrained into the air by the action of tires grinding on the roadway. Emissions of paved road dust are proportional to vehicle miles traveled. Re-entrained road dust emission rates are not affected by vehicle speed but are affected by the silt loading on the road and amount of vehicle travel on a road. Where unpaved shoulders exist, the volume of heavy-duty truck traffic can affect emissions in that the wind currents created from truck undercarriages can pick up more fugitive dust from shoulders than other vehicles. Emissions rates are lower per mile traveled on more traveled roads than they are on roads that receive less traffic.

Paved road dust is one of the largest categories of PM10 emissions accounting for 39.1% of the total directly-emitted, non-windblown 1994 PM10 inventory and 20.4% of the 2006 pre-control total (including windblown) PM10 inventory. Total uncontrolled paved road dust emissions increase by almost 30% from 1995 to 2006 due to the increase in vehicle miles traveled.

Installing trackout control devise(s) minimizes street cleaning costs. According to vendor estimates, the cost (in terms of 1994 dollars per pound of PM10 reduced) of a high efficiency

vacuum sweeper for street sweeping is $230,000. This high efficiency vacuum sweeper for street sweeping has only recently been developed and tested in communities on the West coast. The maintenance cost is estimated to be $30,000 per year, based on data collected in the report "Street Sweeping Study" prepared for the Coachella Valley Association Of Governments.

Installing trackout control device(s) meets regulatory requirements. The best available control measure (BACM) plan for the South Coast Air Quality Management District estimated (in terms of 1994 dollars per pound of PM10 reduced) the cost of constructing a paved access approach to be $8,496. This would cover a 0.055 acre area (i.e., 2,400 square feet) with a pavement thickness of 2 inches and an 8-inch aggregate base. An additional cost element is the minor grading required to establish a smooth transition to the edge of the road pavement. In addition, the cost of reducing fugitive dust emissions by 70% on haul road use (20 trips per day) is estimated to be $9, 774 for a small industrial site with 0.6 miles of haul road. As emissions are generated only on days when the site is in operation, the average daily cost is measured on the basis of site operation days estimated to be 248 per year. This yields a cost of $39.41 per site per operating day and a daily reduction of 157.56 pounds of PM10.

Based on emissions inventory data collected by Engineering Science, the costs of implementing dust control plans for a 300-acre residential construction project is estimated to be $5,000. The plan review and enforcement costs are estimated to be $1,106 and $387, respectively. While the cost to clean-up trackout (i.e., the availability of equipment and manpower) is estimated to be $198.40-lb. spill – not including penalties incurred for violating dust control regulations.

The cost of a gravel bed trackout control device has been estimated by Clark County Department Of Air Quality Management as $500 to construct and $860 per year to maintain. Maintenance includes the periodic removal, screening, and replacement of the gravel to remove accumulated soil. The cleaning frequency depends on the ability of construction site water truck operators to keep disturbed soils moist enough to prevent visible dust plumes but dry enough to prevent mud from adhering to the wheels of on-highway vehicles leaving the site.

The newest trackout control device in use in serious PM10 nonattainment areas is a pipe grid system that shakes the accumulated dirt and mud from trucks leaving construction sites, according to a study conducted by San Joaquin Valley Unified Air Pollution Control District. The device consists of 2-inch diameter steel pipe welded in a ladder grid of 8-foot lengths. Three sections of grid are linked together in each of two lanes and appropriately spaced over a 2-inch thick bed of 1-inch aggregate with dimensions of 100-feet by 18-feet at the exit of an unpaved area. The cost of purchasing, shipping, and installing the control device is approximately $5,100. The pipe grid has a useful life of 8 years, which means that the annualized purchase and installation cost of the system is $958 per year. Periodically, the device needs to be removed and the aggregate screened and re-laid to remove accumulated dirt. The total of this maintenance cost and the annualized purchase and installation cost is $1,820 per year.

Rule 310, Section 308.7: The requirement for water sources to be operated on-site at sites that are one acre or larger has been retained, as reflected in amendments adopted by the Board Of Supervisors during the Public Hearing on April 7, 2004.

A qualification has been added to this requirement - water sources must be kept on-site at sites one acre or larger, unless a visible crust is maintained or the soil is sufficiently damp. If a source has the soil in a moist enough state to prevent dust from becoming dislodged, no changes would have to be made to its water source placement. Regardless, whether water sources are operated on-site, or a visible crust is maintained, or the soil is sufficiently damp, compliance with the 20% opacity standard is required.

Per the "Analysis Of Moisture Effects On Emissions From Construction Activities" prepared by Midwest Research Institute in July 2000, as the soil surface layer dries, re-watering will be necessary, focusing on areas with the maximum disturbance of the soil. For example, a haul road where scrapers are transporting soil from one location to another is usually the most important area to control to the highest degree because of construction equipment traveling several times a minute over the same haul road.

Per the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10, establishing criteria for dust control is complicated by variations in soils, meteorological conditions, equipment size/use, project phase, and level of activity. All these factors can impact the amount of water needed to control fugitive dust on a particular site on a particular day, making it difficult to establish criteria that apply to all sites at all times. The need for specific criteria lessens, if a firm standard(s) is established to gauge source compliance. If Maricopa County incorporates additional standards/test methods into Rule 310 that increase the certainty of adequate control, this may lessen the necessity for detailed requirements on dust suppressant application and/or equipment. Even so, the EPA anticipates that some new requirements will be necessary to ensure adequate control, particularly for sites where soils tend to have low water permeability and during the driest seasons. In meeting this enforceable commitment, Maricopa County should evaluate adding, to Rule 310, a ratio of water truck equipment to earthmoving equipment and/or project size.

According to the Clark County Department Of Air Quality Management PM10 State Implementation Plan (SIP) dated June 2001, grading is the most dust-intensive phase of a construction project. Because of the unavailability of cost factors, cost analysis is based on cost effectiveness per acre or control of dust from grading operations. In "An Evaluation Of Incorporating Best Management Practices Into The Construction Activities Program" prepared for the Clark County Health District Board Of Health, Dames & Moore found that the cost of controlling dust during grading on a 40-acre parcel with soils categorized as "low" particulate emission potential would typically be $1,700 per day or $43 per acre per day. This cost is predicated on the application of 200,000 gallons of water. The water application rate and cost would double for a parcel with soils classified as "high" particulate emission potential. Therefore, the cost per acre per day for controlling dust from grading operations ranges from $43 per acre per day to $86 per acre per day.

In a study conducted by San Joaquin Valley Unified Air Pollution Control District, the cost of watering an unpaved parking lot one acre in size or larger once per day, immediately prior to the commencement of parking activity, is estimated to be $68 per day.

Rule 310, Sections 502.1 and 502.2: Recordkeeping requirements have been clarified by adding more detail about what types of records must be kept. Regulated sources are already required to document all control measures implemented; the additional language does not add any new requirements, but rather simply clarifies the existing standard by giving examples. Therefore regulated sources will have no increased costs as a result of these proposed revisions.

Economic Impacts On County Resources:
The Air Quality Division of the Maricopa County Environmental Services Department has compliance and enforcement programs to handle fugitive dust emissions and has instituted an air quality enforcement policy. The purpose of the policy is to provide a consistent process for documenting air quality violations, notifying alleged violators, and initiating enforcement actions, to ensure that violations are addressed in a timely and appropriate manner. Over the years, Maricopa County has hired additional enforcement personnel and legal staff at the County Attorney's office to enforce the fugitive dust program. Maricopa County has begun to enforce Rule 310 more aggressively by taking more enforcement actions with monetary

penalties, in order to make clear to the regulated community that compliance with Rule 310 should be a priority.

Health Costs:
Because Maricopa County is a serious nonattainment area for PM10, which these revisions address, it is imperative to consider the medical and social costs of failing to take steps toward the improvement of the air quality. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs – these include personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.
2. Work loss – this includes lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.
3. Increased costs for chores and care giving – these include special care giving and services that are not reflected in medical costs. These costs may occur because some health effects reduce the affected individual's ability to undertake some or all normal chores, and she or he may require extra care.
4. Other social and economic costs – these include restrictions on or reduced enjoyment of leisure activities, increased discomfort or inconvenience, increased pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rule Impact Reduction On Small Businesses:
A.R.S. § 41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in A.R.S. § 41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations."

Each commitment made in the Serious Area PM10 Plan included an explanation of costs and funding. Since this rulemaking process is being conducted to fulfill commitments made in the Serious Area PM10 Plan, the economic ramifications should not exceed the economic ramifications described in the costs and funding information included in the Serious Area PM10 Plan. For example, in the "Final Report-Particulate Control Measure Feasibility Study", Volume I and II, prepared for Maricopa Association Of Governments by Sierra Research, Inc., based on emission inventory data collected by Engineering Science, the costs of implementation for a typical 300-acre residential construction project would be $2,700 per project. The cost of preparing a dust control plan for such project is estimated to be $5,000. The dust control plan review and enforcement costs are estimated to be $1,106 and $387, respectively.

In addition, in its economic analysis of the final Phase II Storm Water Rule (i.e., construction activities-including other land-disturbing activities that disturb 1 acre or more are regulated under Phase II of the National Pollutant Discharge Elimination System (NPDES) storm water program and must implement best management practices (BMPs) to control storm water discharges), the EPA stated that the overall cost increases due to requiring operators of construction sites that disturb 1 acre to 5 acres to develop and implement storm water pollution prevention plans and to obtain permit coverage will be minor and that the potential benefits of these modifications outweigh the incremental costs. The EPA estimated that the total cost of these modifications for all permittees across the United States would be less than $5 million per year. Also, the EPA estimated that the average incremental cost per permit per year for the final Phase II Storm Water Rule is $276. Because monitoring frequency is

typically less frequent for small entities than large entities, the EPA expects the average incremental cost per permit per year to be even less than $276 for small businesses. Also, the EPA used a "sales test" to evaluate the potential severity of economic impact of compliance costs on small businesses. The analysis estimated compliance costs for three sizes of construction sites and then the EPA compared those costs with a representative sale price for three building categories. The site size categories were one, three, and five acres and they represented the amount of disturbed land on a work site. The three building categories were single-family home, multi-family residences, and commercial. The EPA assumed that all compliance costs were incurred by the building contractor. It was unlikely that the compliance costs – even if they exceeded 1% or 3% of sales for many construction businesses – would have a significant effect on these businesses, because costs will be passed on to the eventual purchaser of the property. Regardless of whether the compliance costs constitute a 1% or greater share of small building contractor sales, the EPA states that the impact of the final Phase II Storm Water Rule on contractors that build single-family detached residences will be minimal, because they are able to pass regulatory costs onto buyers.

Conclusion:
Maricopa County worked-with small businesses throughout the rulemaking process for Rule 310, Appendix C, and Appendix F. As a result of this collaboration, Maricopa County was able to design rule revisions that meet the needs of the regulated community while meeting Maricopa County's commitments in the Serious Area PM10 Plan. For example, the definition of "areas accessible to the public" has been revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots, the threshold for sites on which a trackout control device is required has been revised to 2 acres or larger, and the threshold of 1 acre or larger for sites on which water sources must be present has been retained.

Because the changes to Rule 310, Appendix C, and Appendix F will essentially clarify requirements that already exist, there is only a minimal economic impact on regulated entities, Maricopa County resources, small business, and the public at large. Maricopa County anticipates that these costs may be offset by reduced costs in other areas or that the new requirements simply incorporate practices that are already put in place. It is also important to note that regulated sources may be encouraged by these revisions to use dust suppressants other than water in order to assure compliance with rule standards, and by doing so may save money in the long run.

10. Description of the changes between the proposed rules, including supplemental notices, and final rules:
The following changes were made in Rule 310, Appendix C, and Appendix F since the text of the proposed rules was published in the Notice Of Proposed Rulemaking on October 31, 2003. Some of these changes have been made in response to formal comments (see #11 below) and some of these changes have been made in response to Maricopa County's collaboration with small businesses, which are reflected in amendments adopted by the Board Of Supervisors during a Public Hearing on April 7, 2004. Where a change is shown and/or described that is the result of the Board Of Supervisors' amendments, it is noted.

These changes appear in the text of the final rules to be published in this Notice Of Final Rulemaking:

Section 201: As reflected in amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was re-defined to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Section 226: Deleted "roadway".

Section 302.1: Returned the original text "shall not allow".

Section 302.2(a): Returned the original text "shall not allow".

Section 302.2(b): Changed second sentence to read: "If complying with this subsection, the owner and/or operator must include, in a Dust Control Plan, the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employees, earthmoving equipment, haul trucks, and water trucks)". This change is consistent with the change made to Section 304.3(c).

Section 302.3: Added text from Appendix C, Section 2.2 as second sentence: "Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results".

Section 304.3(c): Changed section to read: "If complying with Section 302.2(b) of this rule, the Dust Control Plan must include the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks)". This change is consistent with the change made to Section 302.2(b).

Section 304.6: Deleted requirement to disclose shrink/swell potential in a Dust Control Plan, as reflected in amendments adopted by the Board Of Supervisors.

Section 307: Added "except for routine maintenance and repair under a block permit" to the first sentence. The first sentence reads: "For all sites with an earthmoving permit that are five acres or larger, except for routine maintenance and repair done under a block permit, the owner and/or operator shall erect and maintain a project information sign at the main entrance, this is readable by the public".

Section 308.3(a)(1): Changed threshold from one acre or larger to two acres or larger regarding installing a trackout control device on all work sites with a disturbed surface area, as reflected in amendments adopted by the Board Of Supervisors.

Section 308.3(b)(1): Deleted "or within 30 minutes".

Section 308.6(a): Deleted "during" and added "prior to and/or while conducting". Deleted "apply water, as necessary, to maintain compliance with Section 301 of this rule; and". Added "comply with one of the following work practices". Section 308.6(a) reads: "Prior to and/or while conducting stacking, loading, and unloading operations, comply with one of the following work practices:"

Section 308.6(a)(1): Added Section 308.6(a)(1) – "Spray material with water, as necessary; or". This control measure matches the control measure listed in Table 11.

Section 308.6(a)(2): Added Section 308.6(a)(2) – "Spray material with a dust suppressant other than water, as necessary". This control measure matches the control measure in Table 11.

Section 308.6(b): Deleted Section 308.6(b). Section 308.6(b) is already listed in Table 11, as a suggested additional control measure for contingency plans.

Section 308.6(c): Re-numbered Section 308.6(c) to original Section 308.6(b).

Section 308.7: Deleted threshold of ½ acre or larger and returned the original threshold of 1 acre or larger regarding operating a water application system on-site while conducting any earthmoving operation on disturbed surface areas, as reflected in amendments adopted by the Board Of Supervisors.

Table 11: In heading, changed "during" to "for". In Item (a)(1), added "as necessary", changed "and" to "and/or", and deleted "or". In Item (a)(2), added "as necessary" and changed "and" to "and/or". In Item (b), added (2) and (3) from Table 12. Item (b)(2) reads: "Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate" and Item (b)(3) reads: "Remove material from the downwind side of the storage pile when safe to do so".

Table 12: In title, added "When Not Conducting Stacking, Loading, And Unloading Operations". In Item (a)(2), changed "method as" to "methods" and changed "method" to "methods". In Item (b), deleted (1) and (2). Items (b)(1) and (b)(2) were added to Table 11.

Table 13: Deleted Item (a)(4), "spray material with water prior to loading and spray material with water while loading", because it is already listed in Table 11.

Table 17: In Item (a)(1), deleted "or within 30 minutes". In Item (b)(2), deleted "and".

Appendix C, Section 3.3.2(d): Added "discrete" to second sentence.

Appendix C, Section 3.3.2(e): Added "(e.g., vehicle traveled in front of path, plume doubled-over)" to end of last sentence.

Appendix C, Section 3.3.2(f): Deleted "unless any one reading is greater than 50% opacity".

Appendix C, Section 3.3.3(b)(2): Added "Readings can be taken for more than one piece of equipment within the discrete length of travel path within the 140° sector to the back" to the end of the last sentence.

Appendix C, Section 3.3.3(g): Deleted "unless any one reading is greater than 50% opacity".

Appendix F, Section 2: Deleted Soil Shrink/Swell Potential map, as reflected in amendments adopted by the Board Of Supervisors.

11. Summary of the comments made regarding the rules and the department's response to them:
Maricopa County Environmental Services Department, Air Quality Division has received written comments from 7 stakeholders regarding the revisions to Rule 310, Appendix C, and new Appendix F.

Comment #1:
Maricopa County's economic analysis is incomplete and lacks the discussion of the costs associated with trackout, carry-out, spillage, and/or erosion. The economic impact statement fails to address the economic effect of the new 50% opacity standard as observed in a single opacity reading, the requirement for the designation of texture of soil and shrink/swell potential in dust control plans, and the costs associated with activities on sites 1 acre or larger. Many smaller sites may find it to be substantially more expensive to install trackout control devices than the current measures they use to control dust. Maricopa County has extended the scope of the changes far beyond the commitments made to the EPA. The impact and implementation of the current rule should be assessed before re-writing the rule this extensively.

Response #1:
In this Notice Of Final Rulemaking, Maricopa County has better described the economic effects of the proposed rule revisions. Maricopa County agrees that addition analysis is necessary for the 50% opacity standard and has removed the proposal from this rulemaking. Also, per amendments adopted by the Board Of Supervisors, the requirement to include shrink/swell potential statements in dust control plans has been removed and the requirement to install trackout control devices at sites one acre or larger has been changed to two acres or larger.

Comment #2:
Before implementing the new 50% opacity standard, a complete evaluation and emission modeling effort must be performed to ensure the perceived reductions will attain the ambient air quality goal within the targeted area. The 50% opacity requirement provides an incentive to use 50% readings instead of timed readings. This practice will be subjective, since there is no method described in Rule 310 for the 50% opacity standard. Maricopa County should allow stakeholders additional time to review the efficacy and practicality of the 50% opacity single observation visual test method. The proposed test method requiring an observation of non-continuous dust plumes immediately following commencement of bulk loading/unloading, non-conveyorized screening, or trenching and one additional reading 5 seconds later is a significant change in the opacity standard. Such a dramatic departure from the current requirements should not be promulgated without any legal, technical, and economic analysis. Maricopa County has not demonstrated that such a stringent measure is practicably available in Maricopa County's particularly unique arid environment. The existing standard of 20% opacity averaged over (12) 15-second intervals is reasonable and achievable. The multiple readings diminish the inherent subjectivity of opacity readings performed by human observation. Maricopa County should remove the 50% opacity standard from Rule 310.
Response #2:
Following the revisions to Rule 310 in 1999 and in 2000, the EPA expressed concern that the existing opacity standard and test method for earthmoving operations may not always be sufficient to control construction site dust to BACM levels. As a result, Maricopa County committed to revise Rule 310 and/or Appendix C to modify the existing opacity standard/test method or add an additional opacity standard(s)/test method(s) tailored to non-process fugitive dust sources that create intermittent plumes. The proposed test method requiring an observation of non-continuous dust plumes immediately following commencement of bulk loading/unloading, non-conveyorized screening, or trenching and one additional reading 5 seconds later better addresses the nature of the activities that last for less than 3 minutes. Although Maricopa County has conducted research to develop test methods that more accurately determine opacity compliance, an instantaneous reading was not part of that research. The current test method still requires an average of 12 readings to determine compliance and minimize subjectivity. While Clark County in Las Vegas, Nevada, adopted a 50% opacity standard as observed in a single opacity reading in 2003, Maricopa County agrees that all of the ramifications of the new opacity standard have not yet been examined. Consequently, Maricopa County has removed the 50% opacity standard from Rule 310. In future Rule 310 rulemakings, though, Maricopa County will reconsider the 50% opacity standard as a "most stringent measure" for meeting the PM10 plan.

Comment #3:
The combination of the removal of the requirement for opacity observations at 1 meter above the equipment creating the plume and the addition of an "initial fallout zone" that is not clearly defined will affect measurement consistency. Without the 1 meter requirement, results can vary significantly depending on where the observer takes the opacity reading, because any plume created tends to dissipate farther from the source. Maricopa County should reinsert the 1 meter height limit and should remove references to the "initial fallout zone".
Response #3:
Comments received during Rule 310 public workshops identified feasibility issues with several provisions of the proposed revisions to Rule 310 and Appendix C. In addition, during their

review of Rule 310, the EPA identified changes that they believed impacted approvability of proposed provisions as BACM. Maricopa County revised Appendix C, Section 3 (Time Averaged Methods Of Visual Opacity Determination Of Emissions From Dust Generating Operations) not only to address its State Implementation Plan commitment "to modify Rule 310's existing opacity/test method or add an additional opacity standard(s)/test method(s), so that such standard(s) and/or test method(s) better characterize fugitive dust source that create intermittent plumes", but also to address the EPA's concerns regarding intermittent sources and continuous sources.

Maricopa County reviewed field observations and concluded that not all heavy dust particles "fallout" at 1 meter but rather "fallout" occurs between 5 feet and 25 feet above the equipment creating the plume. For example, depending on the speed of a paddlewheel, a dense plume of materials with an opacity up to 100% is present at 1 meter above the equipment, as large materials are still falling out of the plume. Therefore, Maricopa County revised Rule 310 to include an "initial fallout zone" and defined "initial fallout zone" as that area where the heaviest particles drop out of the entrained fugitive dust plume. The fallout zone concept is similar to the steam plume concept in Method 9 and the visible emissions method used for abrasive blasting.

Comment #4:
The definition of "area accessible to the public" is too broad and could lead to enforcement problems on controlled sites. It may be more acceptable if Maricopa County would accept signage that designates an area as "No Public Access Allowed".
Response #4:
Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Comment #5:
The commitment to research and develop a standard and test method(s) for earthmoving operations that would sufficiently control construction site dust to best available control measure (BACM) levels did not include a requirement that Maricopa County impose more stringent requirements on non-earthmoving operations. Therefore, Maricopa County should exclude fugitive dust generated from non-continuous emptying or "tipping" of filled waste containers (non-earthmoving operations) from the scope of this rulemaking.
Response #5:
The non-continuous emptying or "tipping" of filled waste containers may include dirt that is scooped-up with landfill waste. Dust generating operations include scraping/scooping up dirt and loading and unloading that dirt regardless of whether or not that dirt is mixed with landfill waste. Emptying or "tipping" of filled waste containers that include dirt is also considered to be an "intermittent activity" (for which the EPA expressed concern) and is subject to Rule 310. A review of Maricopa County inspections did not find instances when dumping into a landfill created excessive emissions. However, the file review did reveal that trackout, covering/closing an active landfill face, and weed abatement can create emissions issues at a landfill.

Comment #6:
Maricopa County should more clearly define what sites need dust control permits and dust control plans. The "owner/operator" language needs to incorporate "any individual" involved in a dust generating activity, because it is unclear whether or not a party other than the "owner/operator" is regulated. Dust control measures are best managed and enforced by the individual contractors who work at a site not the site owner or operator who may not be present on a daily basis. Best available control measures (BACM) could require owners and operators to implement effective management measures that ensure contractors have the tools and training necessary to comply with dust control requirements.

Response #6:
When determining responsibility for compliance, Maricopa County looks to the party that has operational control over construction or operational plans and specifications, and/or the person who has the authority to control dust at a site. Most individual employees do not have the authority to implement dust control on their own. Maricopa County's enforcement policy allows Maricopa County to cite subcontractors, as well as general contractors, for violation(s) of Rule 310. The decision regarding whom to cite for a violation is made on a case-by-case basis considering the facts of the specific violation. Field inspectors have the authority to write violations that are subject to civil penalties for each day of violation.

Maricopa County agrees that owners and/or operators should implement effective management measures to ensure that contractors have the tools and training necessary to comply with dust control requirements. General contractors cannot rely on subcontractors to comply with all dust control requirements. General contractors must implement standard procedures with their subcontractors (i.e., prepare dust control procedures manuals and train project managers and superintendents). To help general contractors understand and develop such standard procedures, Maricopa County has:

- Collaborated with the Arizona Department Of Transportation and Maricopa County Department Of Transportation to develop a manual for government construction oversight.
- Conducted public outreach/education workshops to explain dust control measures and recordkeeping requirements.
- Met with and trained city staff to prepare inspection reports.

Comment #7:
By using the word "ensure" instead of "shall not allow", Maricopa County is putting unreasonable controls on the owner/operator. "Ensure" is unattainable, impractical, and outside the scope of Maricopa County's commitment to the EPA. Industry makes every effort to implement BACM throughout the active/inactive boundaries of the dust generating activity. However, as an industry, no matter what measures are taken, industry cannot guarantee that properties inaccessible, as well as accessible to the public, will not be circumvented by trespassers.
Response #7:
Maricopa County deleted "ensure" from Rule 310 and returned "shall not allow" to Rule 310.

Comment #8:
What influence does stabilization have on the requirement to ensure visible fugitive dust emissions do not exceed 20% opacity and to ensure silt loading is less than 0.33 oz/ft2 or to ensure silt content does not exceed 6% on any unpaved haul/access road? A surface could be stabilized but breach this requirement, after testing the material.
Response #8:
Test methods are needed for owners, operators, Maricopa County, or other interested parties to make objective and consistent determinations about a source. A minimum standard and a corresponding test method are used to indicate whether a source poses a dust problem that needs to be controlled. A test method can also be used to determine whether a specific control applied to the source has successfully stabilized the surface as intended. Silt loading and silt content are two criteria for indicating when stabilization is adequate. Both criteria have been incorporated into Rule 310 from the Federal Implementation Plan (FIP), as required by the EPA.

Test methods can be used as evidence for Maricopa County when issuing an emissions violation to a source and as evidence for a source that the source is not violating an emissions standard when complaints are made.

The Federal Implementation Plan (FIP) requires owners/operators of unpaved roads and unpaved parking lots to comply with 2 standards – a 20% opacity standard and a silt content

standard. Silt content is not to exceed 6% for unpaved roads and 8% for unpaved parking lots. According to the FIP, if a source passes the opacity standard but fails the silt content standard, or vice versa, it is not in compliance with the FIP. It may not be necessary to conduct the silt content test method, if the surface is kept damp enough to bind dirt particles such that a sample collected from the source would "stick". The silt content test method should not be done immediately following surface wetting, as this may not represent the most common condition of the source as it receives vehicle traffic.

Comment #9:
Maricopa County's commitments do not mandate requiring certain dust control plans to include the number of vehicles traveling on unpaved roads "each day". Providing the number of vehicles traveling on unpaved roads each day that a site is active would be an undue paperwork burden. Maricopa County should clarify Rule 310 to require individuals who use this provision to specify the maximum daily number of vehicles that would be used on-site during activities.
Response #9:
During the rulemaking process to adopt the February 16, 2000 version of Rule 310, the EPA explained in a letter dated November 29, 1999 that corrections to Rule 310 were necessary in order for the EPA to approve the rule in the State Implementation Plan. One of those corrections was that if an owner and/or operator of haul/access roads chose the control measure of limiting vehicle trips to 20 per day, then such owner and/or operator "must include in their dust control plan a complete list of all vehicles anticipated to be on-site at any time during the project (e.g., number of employee vehicles, earthmoving equipment, haul trucks, water trucks)". After discussions with the EPA and stakeholders, Maricopa County agreed to add the EPA's requested requirement without the requirement for a "complete list of all vehicles". In Rule 310, as adopted February 16, 2000, Maricopa County modified the EPA's requested requirement and added it to Section 304 (Elements Of A Dust Control Plan): "If complying with subsection 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access Roads) of this rule, must include the number of vehicles traveled on the unpaved haul/access roads (i.e., number of employee vehicles, earthmoving equipment, haul trucks, and water trucks)". For this rulemaking process, Maricopa County concurs that Rule 310 should specify the maximum daily number of vehicle trips on unpaved haul/access roads and has revised Rule 310 accordingly.

Comment #10:
Maricopa County should delete the language referencing "at least", beginning in Section 302.3 (Open Area And Vacant Lot Or Disturbed Surface Area) and continuing throughout Rule 310.
Response #10:
To Rule 310, Section 302.3, Maricopa County added the following sentence, from Appendix C, Section 2.2, to clarify "at least": "Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results".

Comment #11:
Although Rule 310 applies to disturbed surface areas that exceed 0.1 acre, the term "disturbed surface area" is open to inconsistent interpretation and Maricopa County has not provided a technical, legal, or economic justification for expansively interpreting the definition of "disturbed surface area" to include work site preparation areas. "Disturbed surface areas" should be limited to the surface area that is actually trenched, excavated, or cleared for future development. Likewise, Maricopa County should exclude from Rule 310 worksite preparation areas and provide owners, operators, and subcontractors with sufficient notice that their activities require permits and plans.

Response #11:
The definition of "disturbed surface area" has been in Rule 310 since 1993. "Disturbed surface area" is defined as a portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust. "Disturbed surface area" was intended to distinguish soil conditions not dust generating activities.

Rule 310 applies to dust generating activities of any size. Although only those activities that disturb surface areas of 0.10 acre are required to obtain a permit, a work site preparation area creates disturbed surface areas and must comply with Rule 310. Maricopa County has always maintained that work preparation areas must be included in the permit work site. As a result almost all applicants include these areas. To further address this issue, Maricopa County is revising the application instructions and guidance and will revise Rule 200 (Permit Requirements) in the near future.

Comment #12:
Maricopa County's conclusion that it "feels" that the provision requiring construction sites one acre or larger to include a statement disclosing soil types will have no economic impact is premature. Requiring onsite water systems, such as water trucks, on virtually all sites larger than ½ acre is a major expansion of the current rule and will directly impact small businesses. Until Maricopa County develops and makes available guidance outlining the types of control measures necessary, Maricopa County cannot know the economic impact of Rule 310. Also, one acre is much too small an area on which to require the inclusion of soil texture and shrink/swell potential in the dust control plan for construction projects. Maricopa County should change the size requirement to no less than 10 acres, as in the previous draft dated September 5, 2003. However, if Maricopa County retains this requirement, then Maricopa County should provide more suitable maps. The maps in Appendix F are so small that it is impractical to identify a specific acre.
Response #12:
Per amendments adopted by the Board Of Supervisors, the requirement to include shrink/swell potential statements in dust control plans has been removed; the requirement to include soil texture descriptions in dust control plans for sites one acre or larger remains. Also, per amendments adopted by the Board Of Supervisors, the requirement for water sources to be operated on-site at sites that are one acre or larger has been retained. Water sources were originally proposed to be on-site at projects ½ acre or larger.

One of the primary reasons for revising Rule 310 is to strengthen Rule 310 in accordance with the enforceable commitments made by Maricopa County as part of the approved PM10 State Implementation Plan. Maricopa County committed "to develop parameters that address various site conditions and are sufficient to ensure that Rule 310's performance standards are met more consistently". Rule 310 addresses this commitment by requiring owners and/or operators in areas where soil types are more conducive to the generation of dust to use more stringent fugitive dust control measures. While the EPA supported this concept, the EPA was concerned that the phrase "projects 10 acres or larger" was somewhat ambiguous and subject to differing interpretations that could complicate compliance/enforcement. The EPA contended that disclosing designated texture(s) of soil and their shrink/swell potential naturally present at or to be imported to a dust generating operation should be extended to smaller projects than 10 acres. The requirement to read soil types from a map (soil testing is not required) poses no additional burden to a source or project that is already required to develop a dust control plan. It is unclear why an owner and/or operator would not want to have soil type information for any project that is required to have a dust control plan.

Rule 310 is not the only regulation requiring construction sites to describe soil type(s) in a dust control plan. Construction activities (including other land-disturbing activities) that disturb one acre or more are regulated under Phase II of the National Pollutant Discharge Elimination

System (NPDES) storm water program, a regulatory action which requires small municipalities and construction sites to implement best management practices to control storm water discharges. On March 10, 2003, new regulations came into effect that extended coverage to construction sites that disturb one acre to five acres in size, including smaller sites that are part of a larger common plan of development or sale. Sites disturbing five acres or more were regulated previously. Operators of regulated construction sites are required to develop and implement stormwater pollution prevention plans and to obtain permit coverage from an authorized state or from the EPA, if the state is not authorized by the EPA to issue NPDES permits. Arizona conforms to the federal NPDES. Since December 2002, the Arizona Department Of Environmental Quality (ADEQ) has administered the Arizona NPDES program as an approved NPDES program for discharges to surface waters within Arizona. In response to Phase II of the NPDES program revisions, Arizona changed its Arizona NPDES program to regulate construction sites one acre or larger.

The Phase II NPDES rule regulates construction starts disturbing one to five acres of land. Specifically, small construction site owners or operators are required to plan and implement appropriate erosion and sediment control best management practices (BMPs). In estimating incremental costs attributable to the final rule, the EPA estimated that installing trackout control devices would cost $15.72 per square yard and developing control plans would cost $361.87 - $1,182.63. Also, the EPA estimated total average compliance costs for a Phase II construction site to be $2,143 for sites disturbing between one and two acres of land, $5,535 for sites disturbing between two and four acres of land, and $9,646 for sites disturbing between four and five acres of land.

Comment #13:
Maricopa County should assign the same block number, when Maricopa County renews block permits. Changing the block permit number, when the block permit is renewed, would require the project information sign to be changed when projects extend beyond the term of the original permit. Issuing the same block permit number at the time of renewal would eliminate this potential violation.
Response #13:
Over the next year, Maricopa County will examine what database changes are required in order to issue the same block permit number at the time of renewal.

Comment #14:
At the end of the first paragraph of Section 308 (Work Practices), Maricopa County should insert the following: "For the purpose of this section, a paved area accessible to the public does not include a paved area that has been designated as a trackout control device in an approved dust control plan". Under this suggested revision, the exception for paved areas that have been designated as a trackout control device would allow Maricopa County the discretion, at the time of approving a dust control plan, to distinguish between suitable paved area trackout devices that are accessible to the public and those that are not suitable (i.e., shopping mall parking lots).
Response #14:
Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was revised to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots.

Comment #15:
The work practices required when crossing a paved area accessible to the public will prevent legitimate uses of paved areas as trackout control devices merely because they are accessible to the public, regardless of the type or frequency of this public use. It is simply not reasonable to allow a threshold for exiting and provide no threshold for simply crossing a street. Maricopa County should repeat the requirements/language regarding installing, maintaining, and using a suitable trackout control device at all exits onto paved areas

accessible to the public in the requirements/language regarding crossing a paved area accessible to the public. Or Maricopa County should merge the requirements and require cleanup for crossing roadways, if the trackout extends more than 50 feet.
Response #15:
To meet best available control measures (BACM), Maricopa County must proactively prevent trackout and not respond retroactively to trackout. Exiting onto paved areas accessible to the public is different from crossing a paved area accessible to the public. The work practices for exiting onto paved areas accessible to the public regard bulk material hauling (i.e., where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day) and not recreational uses of parks. Per amendments adopted by the Board Of Supervisors, the originally proposed definition of "area accessible to the public" was deleted and "area accessible to the public" was re-defined to more closely match the existing definition of "public roadways" and to refer only to public roadways and retail parking lots. With this new definition, Maricopa County should be able to distinguish between suitable paved area trackout devices that are accessible to the public and those that are not suitable.

Comment #16:
Requiring contractors and material suppliers to perform sweeping no later than 30 minutes after trackout has occurred is not reasonable. There are numerous variables that could influence response time. Rule 310 should be tied-to a measurable basis for determining severity. Traffic count or time of day could be used to scale response time.
Response #16:
Maricopa County deleted "or within 30 minutes" from the requirement to clean up trackout, carry-out, spillage, and/or erosion when it extends a cumulative distance of 50 linear feet or more leaving the original text intact. One of the goals of Rule 310 is to prevent or minimize trackout. Rule 310 is tied-to a measurable basis for determining severity and uses the distance trackout extends as that measure. Past State Implementation Plans (SIPs) indicate that 35% - 40% of PM10 comes from re-entrained road dust. Construction trackout is a significant source of road dust.

Comment #17:
Maricopa County should clarify what is meant by "easement", where access by a permitted source is obtained for ingress/egress. There is confusion regarding who the responsible party is for activities occurring on the easement, utility right-of-way, and access roads for utilities.
Response #17:
Rights to ingress/egress arise from a variety of conveyances or agreements that are specific to a site or situation. Some conveyances or agreements for ingress/egress are not interests in real estate but are permits that can be terminated or modified by the party granting them and typically cannot be conveyed or assigned to someone else.

For activities occurring on the easement, utility right-of-way, or access roads for utilities, Maricopa County first looks to establish who has operational control over the activities causing the problems and approaches that individual first. The decision on who to hold responsible will depend upon the specifics of the particular situation. The following examples illustrate some possible outcomes in determining responsibility:

1. The first example is a construction site where utility employees are trenching across the utility's easement at one end of the site without watering. For this example, Maricopa County will hold the utility responsible for dust from trenching.

2. The second example is the same construction site, but this time the contractor's employees are driving across the easement to enter or leave the site and track dirt out into the street. In this example, Maricopa County may hold the contractor responsible for the trackout.

3. The third example is a batch plant that secured a permit to access a public paved road, and whose plant trucks are tracking dirt into the street as they cross the unimproved right-of-way. Maricopa County approaches the batch plant operator initially to gather specifics. While the right-of-way owner may be determined to be responsible, the batch plant operator will probably have to correct this situation depending on the terms in the ingress/egress agreement or permit. Many agreements are designed to hold the right-of way holder harmless for problems created by the batch plant seeking access.

Comment #18:
Why is Maricopa County telling industry how to conduct its business (i.e., during stacking, loading, and unloading operations, empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping)?
Response #18:
Maricopa County removed the requirement – during stacking, loading, and unloading operations, empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping – from the work practice standards and has retained it as a suggested control measure listed in Table 11 (Bulk Material Handling Operations-Work Practices For Stacking, Loading, And Unloading Operations).

Comment #19:
Table 11 (Bulk Material Handling Operations – Work Practices During Stacking, Loading, And Unloading Operations) will require the installation of additional water systems, which will add an estimated $60,000 for installation and $10,000 for maintenance per year, for solid waste transfer stations and landfills within Maricopa County. Maricopa County should closely evaluate its research data and identify those sources of fugitive dust that are the root cause of Maricopa County's concerns and that, when further controlled, will provide a benefit that justifies the costs. Also, Maricopa County made changes to Table 11 without stakeholder input and is prescribing how industry should conduct its business.
Response #19:
Collectively construction site operations emissions (24.5%) and windblown emissions (2.5%) are the second largest contributor of PM10 emissions in the Phoenix area, according to the EPA's Technical Support Document/Notice Of Proposed Rulemaking regarding the revised 1999 Serious Area Particulate Plan for PM10. Material handling and bulk material storage and/or transporting operations are included as sources of fugitive dust at construction sites. The tables in Rule 310 relate to Rule 310, Section 308 (Work Practices) which relate to dust control plans. Maricopa County agrees that Table 11 contains more stringent requirements than Maricopa County intended. As a result, Table 11 has been revised to reinsert the phrase "as necessary" and change the "and" to "and/or". Now, both Table 11 and Rule 310, Section 308.6 (Work Practices-Open Storage Piles) require using water as a dust control method only <u>as necessary</u> to maintain compliance with the 20% opacity limit in Rule 310. Even though industry must comply with Rule 310, industry has the flexibility to create its dust control plan(s) that best suit its business practices.

Comment #20:
Industry should not be required to cover all open storage piles with tarps, plastic, or other material. It is not practical as an everyday requirement. Maricopa County made this change without stakeholder input.
Response #20:
Industry is not required to cover all open storage piles with tarps, plastic, or other material as an everyday requirement. Covering open storage piles with tarps, plastic, or other material is one of four dust control options and applies when <u>not</u> conducting stacking, loading, and unloading operations. Maricopa County added the phrase "when not conducting stacking, loading, and unloading operations" to Table 12 (Open Storage Piles), Item (a). With this addition, Table 12 matches the work practices for open storage piles, described in Rule 310, Section 308.6(b).

Comment #21:
In Table 13 (Bulk Material Hauling/Transporting – Within The Boundaries Of The Work Site When Crossing A Paved Area Accessible To The Public While Construction Is Underway), Maricopa County changed the language from "one of the following" to "all of the following" without stakeholder input.
Response #21:
In the original Rule 310, Table 1 (Source Type And Control Measures), control measures for bulk material hauling/transporting when on-site hauling/transporting within the boundaries of the work site when crossing a public roadway upon which the public is allowed to travel while construction is underway were listed with "and" at the end of each measure, implying that all of the control measures should be implemented. After discussions at public workshops, Maricopa County created individual tables for each dust generating operation source type listed in Table 1. In doing so, Maricopa County created Table 13 (Bulk Material Hauling/Transporting–Within The Boundaries Of The Work Site When Crossing A Paved Area Accessible To The Public While Construction Is Underway). As written in the Notice Of Proposed Rulemaking for Rule 310, the control measures listed in Table 13 were the same control measures listed in original Table 1. However, Table 13 did not have "and" at the end of each measure but included the introductory phrase "an owner and/or operator must implement all of the following control measures".

Comment #22:
In Table 18 (Weed Abatement By Discing And Blading), Maricopa County changed the language from "one of the following" to "all of the following" without stakeholder input.
Response #22:
In written comments received after the public workshop on September 18, 2003, the EPA stated that Table 18 was not consistent with Section 308.9 (Work Practices-Weed Abatement By Discing Or Blading) and that the last word in Item (a)(1) should be "and" and not "or", to avoid relaxing the State Implementation Plan (SIP). Consequently, in the Notice Of Proposed Rulemaking for Rule 310, Table 18 included the statement "an owner and/or operator must implement all of the following" and included "and" after "apply water while weed abatement by discing or blading is occurring".

Comment #23:
In Table 20 (Wind Event Control Measures – Dust Generating Operations), Maricopa County added the provision – apply water at least twice [once] per hour or apply water to maintain a soil moisture content at a minimum of 12% and construct fences or three-foot to five-foot wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving the site – without stakeholder input.
Response #23:
In the original Rule 310, Table 2 (Source Type And Wind Event Control Measures), four control measures were listed for dust generating operations. Each measure was followed by "or", implying that one of the measures should be implemented. After discussions at public workshops, Maricopa County created individual tables for each source type listed in Table 2. In doing so, Maricopa County created Table 20 (Wind Event Control Measures-Dust Generating Operations). In the Notice Of Proposed Rulemaking for Rule 310, the four control measures listed in Table 20 were the same four control measures listed in original Table 2. However, Table 20 did not have "or" at the end of each measure but included the introductory phrase "an owner and/or operator must implement one of the following control measures".

Comment #24:
Appendix F (Soil Designations) creates a framework to impose measures that may not apply to specific site conditions. The maps are too small that it would be impractical to identify a specific acre on them. If Maricopa County believes it is necessary to require this information, then more suitable maps should be provided.
Response #24:

Soil type statement/descriptions are required to be included in dust control plans for sites one acre or larger. Shrink/swell potential statements were also required to be included in dust control plans for sites one acre or larger, but the requirement has been removed, per amendments adopted by the Board Of Supervisors.

Appendix F contains soil type descriptions and a map of soil textures throughout Maricopa County. Regulated sources should provide, in dust control plans, soil test results, but in the event soil test results are not available, the soil type maps may be used as default information on dust control permit/dust control plan applications. Maricopa County acknowledges the commenter's concerns and will continue to develop more suitable soils maps. Enforcement cases frequently reveal that soils are the culprit when trying to control dust. Knowing soils types before a dust generating activity occurs improves project planning and will allow more effective dust control measures to be implemented and maintained.

Comment #25:
A project sign erected on every jobsite larger than 5 acres stating pertinent information regarding that job is good on a project where the owner has selected a general contractor or builder, but many times the owner is clearing the site for a developer to come-in and start a project. Signs are expensive and timely. Some demolition projects will actually be completed before the sign is finished and ready to be installed. Maricopa County should allow smaller subcontractors to apply for a $50 "temporary" dust permit that will be valid for 30 days or less. This will increase revenues, due to the fact that currently a dust permit is issued for the entire project for a period of 12 months. A long-term dust control permit could then be issued at a later date for the entire project, once the owner/developer is selected with additional fees incorporated.
Response #25:
Most demolition projects are less than 5 acres and would not require a project sign. However, Maricopa County is not opposed to considering a "temporary" dust permit and/or a demolition permit. Maricopa County will have to revise Rule 200 (Permit Requirements) and Rule 280 (Fees), before instituting a "temporary" dust permit and/or a demolition permit. Until then, Maricopa County has been recommending that companies either close the permit at the completion of the project or change the permit into the contractor's name at the completion of demolition. Maricopa County has forms for both options.

12. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:
None

13. Incorporations by reference and their location in the rules:
None

14. Was this rule previously an emergency rule?
No

15. The full text of the rules follows:

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 310
FUGITIVE DUST ~~SOURCES~~

INDEX

Revised 07/13/88
Revised 07/06/93
Revised 09/20/94
Revised 06/16/99
Revised 02/16/00

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310
FUGITIVE DUST ~~SOURCES~~

SECTION 100 - GENERAL

101 PURPOSE: No change

102 APPLICABILITY: The provisions of this rule shall apply to all dust generating operations except for those dust generating operations listed in Section 103. ~~: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and ARS §49-504.4 and open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not located at sources that require any permit under these rules.~~

103 EXEMPTIONS: The following are exempt from the requirements of this rule: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4, and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under these rules.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

201 AREA ACCESSIBLE TO THE PUBLIC – Any retail parking lot or public roadway that is open to public travel primarily for purposes unrelated to the dust generating operation.

~~201~~ 202 BULK MATERIAL - Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), earth, soil, dirt, mud, demolition debris, cotton, trash, cinders, pumice, rock, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete~~, which~~ that are capable of producing fugitive dust at ~~an industrial, institutional, commercial, governmental, construction, and/or demolition site~~.

~~202~~ 203 BULK MATERIAL HANDLING, STORAGE, AND/OR TRANSPORTING OPERATION - The use of equipment, haul trucks, and/or motor vehicles, ~~such as~~ including, but not limited to, the loading, unloading, conveying, transporting, piling, stacking, screening, grading, or moving of bulk materials~~, which~~ that are capable of producing fugitive dust ~~at an industrial, institutional, commercial, governmental, construction, and/or demolition site~~.

~~204 CARRYOUT/TRACKOUT — Any and all bulk materials that adhere to and agglomerate on the exterior surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen onto a paved public roadway.~~

204 CONTROL MEASURE - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust. Control measures include, but are not limited to:

204.1 Curbing.;
204.2 Paving.;
204.3 Pre-wetting.;
204.4 Applying dust suppressants.;

204.5 Physically stabilizing with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization.;

204.6 Limiting, restricting, phasing and/or rerouting motor vehicle access.;

204.7 Reducing vehicle speeds and/or number of vehicle trips.;

204.8 Limiting use of off-road vehicles on open areas and vacant lots.;

204.9 Utilizing work practices and/or structural provisions to prevent wind and water erosion onto paved ~~public roadways~~ areas accessible to the public;

204.10 Appropriately using dust control implements.;

204.11 Installing one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of a paved ~~public roadways.~~ area accessible to the public to control carry-out and trackout.;

204.12 Keeping open-bodied haul trucks in good repair, so that spillage may not occur from beds, sidewalls, and tailgates.;

204.13 Covering the cargo beds of haul trucks to minimize wind-blown dust emissions and spillage.

205 DISTURBED SURFACE AREA – No change

206 DUST CONTROL IMPLEMENT – No change

207 DUST CONTROL PLAN - A written plan describing all fugitive dust control measures.

208 DUST GENERATING OPERATION - Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance ~~and/or~~ and playing on or maintaining a ~~ballfield~~ field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, ~~nor~~ or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

209 DUST SUPPRESSANT – No change

210 EARTHMOVING OPERATION – No change

211 FREEBOARD – No change

212 FUGITIVE DUST - The particulate matter~~, which is~~ not collected by a capture system~~, which~~ that is entrained in the ambient air, and ~~which~~ is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

213 GRAVEL PAD – A layer of washed gravel, rock, or crushed rock ~~which~~ that is at least one inch or larger in diameter, that is maintained at the point of intersection of a paved ~~public roadway~~ area accessible to the public and a work site entrance to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to leaving the work site.

215 GRIZZLY – No change

215 HAUL TRUCK - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as, but not limited to, trailers or other conveyances ~~which~~ that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

~~216~~ ~~INTERMITTENT SOURCE – A fugitive dust generating operation and/or activity that lasts for a duration of less than six consecutive minutes.~~

~~217~~ 216 MOTOR VEHICLE – No change

~~218~~ 217 NORMAL FARM CULTURAL PRACTICE – No change

~~219~~ 218 OFF-ROAD VEHICLE – No change

~~220~~ 219 OPEN AREAS AND VACANT LOTS - Any of the following described in ~~subsection 220.1~~ Section 219.1 through ~~subsection 220.4~~ Section 219.4 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one vacant open area or vacant lot.

~~220.1~~ 219.1 An unsubdivided or undeveloped tract of land adjoining a developed or a partially developed residential, industrial, institutional, governmental, or commercial area.

~~220.2~~ 219.2 A subdivided residential, industrial, institutional, governmental, or commercial lot~~, which~~ that contains no approved or permitted buildings or structures of a temporary or permanent nature.

~~220.3~~ 219.3 A partially developed residential, industrial, institutional, governmental, or commercial lot.

~~220.4~~ 219.4 A tract of land, in the nonattainment area, adjoining agricultural property.

~~221~~ 220 OWNER AND/OR OPERATOR – The person responsible for obtaining an earthmoving permit under Rule 200, Section 305, or any person who owns, leases, operates, controls, or supervises a dust generating operation subject to the requirements of this rule.

~~222~~ 221 PAVE – No change

~~223~~ 222 PUBLIC ROADWAYS – No change

~~224~~ 223 ROUTINE – No change

~~225~~ 224 SILT– No change

225 TRACKOUT/CARRYOUT – Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

226 TRACKOUT CONTROL DEVICE - A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and a paved ~~roadway~~ area accessible to the public that controls or prevents vehicular trackout.

227 UNPAVED HAUL/ACCESS ROAD – No change

228 UNPAVED PARKING LOT – No change

229 UNPAVED ROAD – No change

230 URBAN OR SUBURBAN OPEN AREA – No change

231 VACANT LOT – No change

232 VACANT PARCEL – No change

233 WIND-BLOWN DUST - Visible emissions, from any disturbed surface area~~, which~~ that are generated by wind action alone.

234 WIND EVENT – No change

235 WORK SITE – No change

SECTION 300 – STANDARDS

301 OPACITY LIMITATION FOR FUGITIVE DUST SOURCES DUST GENERATING OPERATIONS: The owner and/or operator of a ~~source engaging in dust generating operations~~ dust generating operation shall not allow visible fugitive dust emissions to exceed 20% opacity as tested by methods described in Appendix C of these rules.

301.1 Wind Event: Exceedances of the opacity limit that occur due to a wind event shall constitute a violation of the opacity limit. However, it shall be an affirmative defense in an enforcement action if the owner and/or operator demonstrates all of the following conditions:

a. All control measures required were followed and 1 or more of the control measures in ~~Table 2 were~~ Tables 20 & 21 was applied and

b. The 20% opacity exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures;

c. The owner and/or operator compiled and retained records, in accordance with Section 502 (Recordkeeping) of this rule; and

d. The occurrence of a wind event on the day(s) in question is documented by records. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked.

301.2 No change

301.3 No change

302 STABILIZATION REQUIREMENTS FOR ~~FUGITIVE DUST SOURCES~~ DUST GENERATING OPERATIONS:

302.1 Unpaved Parking Lot: The owner and/or operator of any unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:

a. Shall not allow silt loading equal to or greater than 0.33 oz/ft2 ~~;~~, or

b. Shall not allow the silt content to exceed 8%.

302.2 Unpaved Haul/Access Road:

a. The owner and/or operator of any unpaved haul/access road (whether including at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:

1. Shall not allow silt loading equal to or greater than 0.33 oz/ft2; or

2. Shall not allow the silt content to exceed 6%.

b. The owner and/or operator of any unpaved haul/access road (including at a work site that is under construction or a work site that is temporarily or permanently inactive) ~~Shall,~~ shall, as an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this subsection 302.2(b) of this rule, the owner and/or operator must include, in a Dust Control Plan, the maximum number of vehicles traveled vehicle trips on the unpaved haul/access roads each day (i.e., including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

302.3 Open Area ~~and~~ And Vacant Lot ~~or~~ Or Disturbed Surface Area: The owner and/or operator of an open area ~~and~~ and/or vacant lot or any disturbed surface area on which no activity is occurring (~~whether~~ including at a work site that is under construction~~, at~~ or a work site that is temporarily or permanently inactive) shall meet at least 1 of the standards described in ~~subsection~~ Sections 302.3(a) through ~~subsection~~ 302.3(g) below, as applicable. Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if ~~such inactive disturbed surface~~ the area is not maintained in a manner that meets at least 1 of the standards ~~described in subsection 302.3(a) through subsection 302.3(g)~~ listed below, as applicable.

a. Maintain a visible crust; ~~or~~

b. Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher; ~~or~~

c. Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; ~~or~~

d. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; ~~or~~

e. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; ~~or~~

f. Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

g. Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

302.4 No change

303 DUST CONTROL PLAN REQUIRED:

303.1 The owner and/or operator of a dust generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre, including both of the following situations:

a. When submitting an application for an earthmoving permit involving earthmoving operations that would equal or exceed 0.10 acre, and

b. Before commencing any routine dust generating operation at a site that has obtained or must obtain a Title V, Non-Title V, or general permit under Regulation II (Permits And Fees) of these rules.

Compliance with this section does not affect an owner and/or operator's responsibility to comply with the other standards of this rule. The Dust Control Plan shall describe all control measures to be implemented before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

~~303.1~~ 303.2 A Dust Control Plan shall, at a minimum, contain all the information described in Section 304 of this rule. The Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan is deemed to be a violation of this rule. Regardless of whether an approved Dust Control Plan is in place or not, the owner and/or operator of a ~~source~~ dust generating operation is still subject to all requirements of this rule at all times. In addition, the owner and/or operator of a source with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator is complying with the approved Dust Control Plan.

~~303.2~~ 303.3 At least one primary control measure and one contingency control measure must be identified in the Dust Control Plan for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s)~~, which may obviate the requirement of submitting a revised Dust Control~~

~~Plan.~~ If the identified contingency control measure is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.

~~303.3~~ ~~The following subsections, subsection 303.3(a) and subsection 303.3(b) of this rule, describe the permit applications with which a Dust Control Plan must be submitted.~~

~~a.~~ ~~If a person is required to obtain an Earthmoving Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any dust generating operation.~~

~~b.~~ ~~If a person is required to obtain or has obtained a Title V Permit, a Non-Title V, or a General Permit under Regulation II (Permits And Fees) of these rules, then such person must first submit a Dust Control Plan and obtain the Control Officer's approval of the Dust Control Plan before commencing any routine dust generating operation.~~

303.4 A Dust Control Plan shall not be required for any of the following activities:

a. To play on or maintain a ~~ballfield~~ field used for non-motorized sports;

b. For landscape maintenance, which, for the purpose of this rule, does not include grading, trenching, nor or any other mechanized surface disturbing activities.;

c. To establish initial landscapes or to redesign existing landscapes of legally-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, city parks, and county regional parks, ballfields, camp sites, and playgrounds at camp sites; hiking paths, horse trails, and bicycle paths~~, ballfields, playgrounds at camp sites, and camp sites, which are used exclusively for purposes other than travel by motor vehicles,~~ that are used exclusively for purposes other than travel by motor vehicles.; ~~For~~ (for the purpose of this rule, establishing initial landscapes or redesigning existing landscapes does not include grading, trenching, ~~nor~~ or any other mechanized surface disturbing activities).

304 ELEMENTS OF A DUST CONTROL PLAN: A Dust Control Plan shall contain, at a minimum, all of the following information:

304.1 ~~Name~~ Name(s), address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust generating operation.

304.2 A drawing, on ~~at least~~ 8½" x 11" paper~~, which~~ that shows:

a. Entire project site/facility boundaries; ,

b. Acres to be disturbed with linear dimensions; ,

c. Nearest public roads; ,

d. North arrow; , and

e. Planned exit locations onto paved ~~public roadways~~ areas accessible to the public.

304.3 Control measures, or a combination thereof, to be applied to all actual and potential ~~fugitive dust sources~~ dust generating operations, before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

a. ~~At least one primary~~ All required control ~~measure~~ measures from Tables 1-21 and at least one contingency control measure must be ~~identified, from Table 1 of this rule,~~ for all ~~fugitive dust sources~~ dust generating operations. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately

implement the contingency control measure(s),. ~~which may obviate the requirement of submitting a revised Dust Control Plan.~~ If the identified contingency control measure(s) is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.

b. Alternatively, a control measure(s) that is not listed in ~~Table 1~~ Tables 1-21 of this rule may be chosen, provided that such control measure(s) is implemented to comply with the standard(s) described in Section 301 and Section 302 of this rule, as determined by the corresponding test method(s), as applicable, and ~~must meet~~ meets other applicable standard(s) set forth in this rule.

c. If complying with ~~subsection~~ Section 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access ~~Roads~~ Road) of this rule, the Dust Control Plan must include the maximum number of ~~vehicles traveled~~ vehicle trips on the unpaved haul/access roads each day (~~i.e.,~~ including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

304.4 Dust suppressants to be applied, including all of the following product specifications or label instructions for approved usage:

a. Method, frequency, and intensity of application.;

b. Type, number, and capacity of application equipment.; and

c. Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.

304.5 Specific surface treatment(s) and/or control measures utilized to control material trackout and sedimentation where unpaved and/or access points join paved ~~public roadways~~ areas accessible to the public.

304.6 For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

305 DUST CONTROL PLAN REVISIONS:

305.1 If the Control Officer determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any ~~given fugitive dust source~~ dust generating operation still exceed standards in Section 301 and Section 302 of this rule, then the Control Officer shall issue a written notice to the owner and/or operator of ~~such source~~ the dust generating operation explaining such determination.

305.2 The owner and/or operator of ~~such source~~ a dust generating operation shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or operator is preparing revisions to the approved Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

306 CONTROL MEASURES:

306.1 The owner and/or operator of a ~~source~~ dust generating operation shall implement control measures before, after, and while conducting ~~any dust generating~~ operations, including during weekends, after work hours, and on

holidays.~~, See~~ in accordance with ~~subsection~~ Section 304.3~~, Table 1, and Table 2~~ and Tables 1-21 of this rule.

306.2 For the purpose of this rule, any control measure that is implemented must ~~meet~~ achieve the applicable standard(s) described in ~~Section~~ Sections 301 and ~~in Section~~ 302 of this rule, as determined by the corresponding test method(s), as applicable, and must meet achieve other applicable standard(s) set forth in this rule.

306.3 Failure to comply with the provisions of Section 308 (Work Practices) of this rule, as applicable, and/or of an approved Dust Control Plan, is deemed a violation of this rule.

306.4 Regardless of whether a dust generating operation is in compliance with an approved Dust Control Plan, is in place or not, or there is no approved Dust Control Plan, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times. In addition, the owner and/or operator of a dust generating operation with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator of a dust generating operation is complying with the approved Dust Control Plan.

307 PROJECT INFORMATION SIGN: For all sites with an earthmoving permit that are five acres or larger, except for routine maintenance and repair done under a block permit, The the owner and/or operator of a source shall erect and maintain a project information sign at the main entrance, that is visible to readable by the public, of all sites with an Earthmoving Permit that are five acres or larger. Such sign shall be a minimum of four feet long by four feet wide, have a white background, have black block lettering which that is at least four inches high, and shall contain at least all of the following information:

307.1 Project name and permit holder name; and ,

307.2 Earthmoving Permit number;.

~~307.2~~ 307.3 Name and phone number of person(s) responsible for conducting the project;, and

~~307.3~~ 307.4 Text stating: "Dust Complaints? Call Maricopa County Environmental Services Department (insert the current/accurate phone number for the complaint phone line)."

308 WORK PRACTICES: When engaged in the following specific activities, the owner and/or operator of a ~~source~~ dust generating operation shall comply with the following work practices in addition to implementing, as applicable, the control measures described in ~~Table 1~~ Tables 1-21 of this rule. ~~Such work practices shall be implemented to meet the standards described in Section 301 and Section 302 of this rule.~~

308.1 Bulk Material Hauling Off-Site Onto Paved ~~Public Roadways~~ Areas Accessible to the Public: Not withstanding other sections of this rule, the owner and/or operator of a dust generating operation and the owner and/or operator of a haul truck shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); ~~and~~

c. Cover all haul trucks with a tarp or other suitable closure; and

d. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

308.2 Bulk Material Hauling On-Site Within ~~The~~ the Boundaries ~~Of~~ of The Work Site: When crossing a ~~public roadway~~ paved area accessible to the public ~~upon which the public is allowed to travel~~ while construction is underway,

the owner and/or operator of a dust generating operation shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches; ~~and~~

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in ~~Table 1 (Trackout-1J, 2J, 3J)~~ Table 17 of this rule.

308.3 ~~Spillage,~~ Trackout, Carry-Out, Spillage, and/or Erosion, ~~And/Or Trackout~~: The owner and/or operator of a dust generating operation shall do all of the following:

a. Install, maintain and use a suitable trackout control device (~~Examples~~ examples of trackout control devices are described in ~~Table 1 (Trackout-1J, 2J, 3J)~~ Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site operation at all exits onto a paved ~~public roadway~~ areas accessible to the public from both of the following:

(1) ~~From~~ all work sites with a disturbed surface area of five ~~acres~~ two acres or larger., and

(2) ~~From~~ all work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day.

b. Clean up ~~spillage,~~ trackout, carry-out, spillage, and/or erosion, ~~and/or trackout~~ on the following time-schedule:

(1) Immediately, when ~~spillage,~~ trackout, carry-out, ~~and/or trackout~~ or spillage extends a cumulative distance of 50 linear feet or more; ~~or~~ and

(2) At the end of the workday, ~~when~~ for all other ~~spillage,~~ trackout, carry-out, spillage, and/or erosion ~~and/or trackout, are other than the spillage, carry-out, erosion, and/or trackout described above, in subsection 308.3(b)(1) of this rule~~.

308.4 Unpaved Haul/Access Roads: The owner and/or operator of a dust generating operation shall ~~Implement~~ implement ~~1~~ one or more control measure(s) described in ~~Table 1 (Unpaved Haul/Access Roads-1C through 5C)~~ Table 3 – Unpaved Haul/Access Roads of this rule, before ~~engaging in the use of~~ using or ~~in the maintenance of~~ maintaining unpaved haul/access roads.

308.5 Easements, Rights-Of-Way, and Access Roads for Utilities (Electricity, Natural Gas, Oil, Water, and Gas Transmission) Associated with Sources that have a Non-Title V Permit, a Title V Permit, and/or a General Permit under These Rules: The owner and/or operator of a dust generating operation shall do at least one of the following:

a. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day per road; ~~or~~

b. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or

c. Implement control measures, as described in ~~Table 1 (Unpaved Haul/Access Roads-1C through 5C)~~ Table 3 – Unpaved Haul/Access Roads of this rule.

308.6 Open Storage Piles: For the purpose of this rule, an open storage pile is any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-96A or other equivalent method approved in writing by the Control Officer and the Administrator of EPA, that the silt content is less than 5%. The owner and/or operator of such dust generating operation shall comply with all of the following:

a. ~~During~~ Prior to and/or while conducting stacking, loading, and unloading operations, comply with one of the following work practices: ~~apply water, as necessary, to maintain compliance with Section 301 of this rule; and~~

(1) Spray material with water, as necessary; or

(2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:

(1) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; ~~or~~

(2) Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods ~~as~~ approved by the Control Officer and the Administrator of EPA. For areas ~~which~~ that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

(3) Meet one of the stabilization requirements described in ~~subsection~~ Section 302.3 of this rule; or

(4) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this subsection, ~~subsection 308.6(b)(4),~~ the owner and/or operator must also implement either ~~subsection 308.6(b)(2)~~ Section 308.6(b)(2) or ~~subsection 308.6(b)(3)~~ Section 308.6(b)(3) above.

308.7 Soil Moisture ~~On Disturbed Surface Areas 1 Acre Or Larger~~: If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earthmoving operations on disturbed surface areas 1 acre or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

308.8 Weed Abatement ~~By~~ by Discing ~~Or~~ or Blading: The owner and/or operator of a dust generating operation shall comply with all of the following during weed abatement procedures by discing or blading:

a. Apply water before weed abatement by discing or blading occurs; and

b. Apply water while weed abatement by discing or blading is occurring; and

c. Either:

(1) Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with ~~subsection~~ Section 302.3 of this rule, after weed abatement by discing or blading occurs; or

(2) Establish vegetative ground cover in sufficient quantity, in compliance with ~~subsection~~ Section 302.3 of this rule, after weed abatement by discing or blading occurs.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 DUST CONTROL PLAN POSTING: The owner and/or operator of ~~a source~~ an earthmoving operation shall post a copy of the approved Dust Control Plan in a conspicuous location at the work site, within on-site equipment, or in an on-site vehicle, or shall otherwise keep a copy of the approved Dust Control Plan available on-site at all times. The owner and/or operator of a ~~source~~ dust generating operation that has been issued a Block Permit shall not be required to keep a copy of the 8½" by 11" site drawing according to section 304.2 of this rule ~~plot plan, an element of a Dust Control Plan, on-site~~.

402 No change.

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: To determine compliance with this rule, the following test methods shall be ~~conducted~~ followed:

501.1 Opacity Observations:

a. Dust Generating Operations: Opacity observations of a source engaging in dust generating operations shall be conducted in accordance with Appendix C, Section 3 (Time Averaged Methods of Visual Opacity Determination of Emissions from Dust Generating Operations) ~~(Visual Determination Of Opacity Of Emissions From Sources For Time-Averaged Regulations) of these rules, except opacity observations for intermittent sources shall require 12 rather than 24 consecutive readings at 15-second intervals for the averaging time~~.

b. Unpaved Parking Lot: Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

c. Unpaved Haul/Access Road: Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

501.2 No change.

502 RECORDKEEPING:

502.1 Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

502.2 Any person who conducts dust generating operations ~~which~~ that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

502.3 Upon verbal or written request by the Control Officer, the log or the records and supporting documentation shall be provided within 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

503 RECORDS RETENTION: No change.

504 TEST METHODS ADOPTED BY REFERENCE: No change.

~~TABLE 1~~

~~SOURCE TYPE AND CONTROL MEASURES~~
~~Vehicle Use In Open Areas And Vacant Lots:~~ ~~1A Restrict trespass by installing signs.~~ ~~2A Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.~~
~~Unpaved Parking Lots:~~ ~~1B Pave.~~ ~~2B Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.1 of this rule.~~ ~~3B Apply a suitable dust suppressant, in compliance with subsection 302.1 of this rule.~~
~~Unpaved Haul/Access Roads: (The control measures listed below (1C-5C) are required work practices, per subsection 308.4 of this rule.)~~ ~~1C Limit vehicle speed to 15 miles per hour or less and limit vehicular trips to no more than 20 per day.~~ ~~2C Apply water, so that the surface is visibly moist and subsection 302.2 of this rule is met.~~ ~~3C Pave.~~ ~~4C Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with subsection 302.2 of this rule.~~ ~~5C Apply a suitable dust suppressant, in compliance with subsection 302.2 of this rule.~~
~~Disturbed Surface Areas:~~ ~~Pre-Activity:~~ ~~1D Pre-water site to the depth of cuts.~~ ~~2D Phase work to reduce the amount of disturbed surface areas at any one time.~~ ~~During Dust Generating Operations:~~ ~~3D Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule.~~ ~~4D Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content.~~ ~~5D Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind blown material leaving a site. If constructing fences or wind barriers, must also implement 3D or 4D above.~~ ~~Temporary Stabilization During Weekends, After Work Hours, And On Holidays:~~ ~~6D Apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.~~ ~~7D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.~~ ~~8D Restrict vehicular access to the area, in addition to either of the control measures described in 6D and 7D above.~~ ~~Permanent Stabilization (Required Within 8 Months Of Ceasing Dust Generating Operations):~~ ~~9D Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions, in compliance with subsection 302.3 of this rule.~~ ~~10D Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.~~ ~~11D Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.~~
~~Open Areas And Vacant Lots:~~

1E Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

2E Pave, apply gravel, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule.

3E Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule.

Control measures 1F – 1M below are required work practices and/or methods designed to meet the work practices, per Section 308 (Work Practices) of this rule.

Bulk Material Handling Operations And Open Storage Piles:

During Stacking, Loading, And Unloading Operations:

1F Apply water as necessary, to maintain compliance with Section 301 of this rule; and

When Not Conducting Stacking, Loading, And Unloading Operations:

2F Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or

3F Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

4F Meet the stabilization requirements described in subsection 302.3 of this rule; or

5F Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing 5F, must also implement 3F or 4F above.

Bulk Material Hauling/Transporting:

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site When Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway:

1G Load all haul trucks such that the freeboard is not less than 3 inches when crossing a public roadway upon which the public is allowed to travel while construction is underway; and

2G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

3G Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 1 (Trackout 1J, 2J, 3J) of this rule; and

When On-Site Hauling/Transporting Within The Boundaries Of The Work Site But Not Crossing A Public Roadway Upon Which The Public Is Allowed To Travel While Construction Is Underway:

4G Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; or

5G Apply water to the top of the load such that the 20% opacity standard, as described in Section 301 of this rule, is not exceeded, or cover haul trucks with a tarp or other suitable closure.

Off-Site Hauling/Transporting Onto Paved Public Roadways:

6G Cover haul trucks with a tarp or other suitable closure; and

7G Load all haul trucks such that the freeboard is not less than 3 inches; and

8G Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

9G Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Cleanup Of Spillage, Carry Out, Erosion, And/Or Trackout:

1H Operate a street sweeper or wet broom with sufficient water, if applicable, at the speed recommended by the manufacturer and at the frequency(ies) described in subsection 308.3 of this rule; or

2H Manually sweep up deposits.

Trackout:

1J Install a grizzly or wheel wash system at all access points.

2J At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep.

4. 3J Pave starting from the point of intersection with a paved area accessible to the public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
Weed Abatement By Discing Or Blading: 1K Pre-water site and implement 3K or 4K below. 2K Apply water while weed abatement by discing or blading is occurring and implement 3K or 4K below. 3K Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs; or 4K Establish vegetative ground cover in sufficient quantity, in compliance with subsection 302.3 of this rule, after weed abatement by discing or blading occurs.
Easements, Rights Of Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules: 1L Inside the PM10 nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day; or 2L Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day; or 3L Implement control measures, as described in Table 1 (Unpaved Haul/Access Roads 1C through 5C) of this rule.
Earthmoving Operations On Disturbed Surface Areas 1 Acre Or Larger: 1M If water is the chosen control measure, operate water application system (e.g., water truck), while conducting earthmoving operations on disturbed surface areas 1 acre or larger.

TABLE 2

Note: Control measures in [brackets] are to be applied only to sources outside the nonattainment area.

SOURCE TYPE AND WIND EVENT CONTROL MEASURES
Dust Generating Operations: 1A Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 miles per hour. If dust generating operations are ceased for the remainder of the work day, stabilization measures must be implemented; or 2A Apply water or other suitable dust suppressant twice [once] per hour, in compliance with Section 301 of this rule; or 3A Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent as approved by the Control Officer and the Administrator of EPA. For areas which have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91(1998) or other equivalent approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or 4A Construct fences or 3 foot - 5 foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas that reduce the amount of wind-blown material leaving a site. If implementing 4A, must also implement 2A or 3A above.
Temporary Disturbed Surface Areas (After Work Hours, Weekends, Holidays): 1B Uniformly apply and maintain surface gravel or dust suppressants, in compliance with subsection 302.3 of this rule; or 2B Apply water to all disturbed surface areas three times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of four times per day; or 3B Apply water on open storage piles twice [once] per hour, in compliance with subsection 302.3 of this rule; or 4B Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings; or 5B Utilize any combination of the control measures described in 1B, 2B, 3B, and 4B above, such that, in total, these control measures apply to all disturbed surface areas.

Table 1
Vehicle Use In Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Restrict trespass by installing signs; or
   2. Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.

Table 2
Unpaved Parking Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Pave;
   2. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.1 of this rule; or
   3. Apply a suitable dust suppressant in compliance with Section 302.1 of this rule.
b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h. on the site.

Table 3
Unpaved Haul/Access Roads

a. An owner and/or operator must implement one of the following control measures:
   1. Limit vehicle speed to 15 m.p.h or less and limit vehicular trips to no more than 20 day;
   2. Apply water, so that the surface is visibly moist in compliance with Section 302.2 of this rule;
   3. Pave;
   4. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.2 of this rule; or
   5. Apply a suitable dust suppressant, in compliance with Section 302.2 of this rule.

Table 4
Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 5
Disturbed Surface Areas – Pre-Activity Work Practices

a. Before activity begins, an owner and/or operator must implement one of the following control measures:
   1. Pre-water site to depth of cuts, allowing time for penetration; or
   2. Phase work to reduce the amount of disturbed surface areas at any one time.

Table 6
Disturbed Surface Areas – Work Practices During Operations

a. During operations, an owner and/or operator must implement one of the following control measures:
   1. Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule;
   2. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

3. Implement (a)(1) or (a)(2) above and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of windblown material leaving a site.

b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h on the work site.

Table 7
Disturbed Surface Areas – Temporary Stabilization (Up To 8 Months)
During Weekends, After Work Hours, And On Holidays

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Implement (a)(1) or (a)(2), above, and restrict vehicular access to the area.

Table 8
Disturbed Surface Areas – Permanent Stabilization
(Required Within 8 Months Of Ceasing Dust Generating Operations)

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 9
Blasting Operations

a. An owner and/or operator must implement all of the following control measures:
   1. In wind gusts above 25 m.p.h., discontinue blasting; and
   2. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

Table 10
Demolition Activities

a. An owner and/or operator must implement all of the following control measures:
   1. Stabilize demolition debris. Apply water to debris immediately following demolition activity; and
   2. Stabilize surrounding area immediately following demolition activity. Water all disturbed soil surfaces to establish a crust and prevent wind erosion of soil.

b. Suggested additional control measure for contingency plans:
   1. Thoroughly clean blast debris from paved and other surfaces following demolition activity.

Table 11
Bulk Material Handling Operations
Work Practices For Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Spray material with water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading; or
   2. Spray material with a dust suppressant other than water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading.

b. Suggested additional control measures for contingency plans:
   1. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
   2. Remove material from the downwind side of the storage pile when safe to do so.

3. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Table 12
Open Storage Piles
When Not Conducting Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Cover open storage piles with tarps, plastic, or other material such that the coverings will not be dislodged by wind;
   2. Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods approved by the Control Officer and the Administrator of the EPA; or for areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the soil moisture content;
   3. Meet the stabilization requirements described in Section 302.3 of this rule; or
   4. Implement (a)(2) or (a)(3), above, and construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.

Table 13
Bulk Material Hauling/Transporting Within The Boundaries Of The Work Site
When Crossing A Paved Area Accessible To The Public While Construction Is Underway

a. An owner and/or operator must implement all of the following control measures:
   1. Load all haul trucks such that the freeboard is not less than 3 inches when crossing a paved area accessible to the public while construction is underway;
   2. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
   3. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site.
b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h. on the work site.

Table 14
Bulk Material Hauling/Transporting When On-Site Hauling/Transporting
Within The Boundaries Of The Work Site But Not Crossing A Paved Area Accessible To The Public

a. An owner and/or operator must implement one of the following control measures:
   1. Limit vehicular speeds to 15 m.p.h. or less while traveling on the work site;
   2. Apply water to the top of the load in compliance with Section 301 of this rule; or
   3. Cover haul trucks with a tarp or other suitable closure.

Table 15
Bulk Material Hauling/Transporting Off-Site Hauling/Transporting
Onto Paved Areas Accessible To The Public

a. An owner and/or operator must implement all of the following control measures:
   1. Cover haul trucks with a tarp or other suitable closure;
   2. Load all haul trucks such that the freeboard is not less than 3 inches;
   3. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
   4. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Table 16

Clean Up Of Trackout, Carry Out, Spillage, And Erosion

a. An owner and/or operator must implement one of the following control measures:
   1. Operate a street sweeper or wet broom with sufficient water, at the speed recommended by the manufacturer and at the frequency(ies) described in Section 308.3 of this rule; or
   2. Manually sweep up deposits in compliance with Section 308.3 of this rule.

Table 17
Trackout Control

a. An owner and/or operator must implement all of the following control measures:
   1. Immediately clean up trackout that exceeds 50 feet. All other trackout must be cleaned up at the end of the workday; and
   2. In accordance with Section 308.3(a), prevent trackout by implementing one of the following control measures:
      i. At all access points, install a grizzly or wheel wash system,
      ii. At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep, in compliance with Section 213 of this rule.
      iii. Pave starting from the point of intersection with a paved area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.

b. Suggested additional control measures for contingency plans:
   1. Clearly establish and enforce traffic patterns to route traffic over selected trackout control devices.
   2. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.
   3. Pave construction activity roadways as soon as possible.

Table 18
Weed Abatement By Discing Or Blading

a. An owner and/or operator must implement all of the following control measures:
   1. Pre-water site;
   2. Apply water while weed abatement by discing or blading is occurring; and
   3. Stabilize area by implementing either one of the following:
      i. Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs; or
      ii. Establish vegetative ground cover in sufficient quantity, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs.

b. Suggested additional control measures for contingency plans
   1. Limit vehicle speeds to 15 m.p.h. during discing and blading operations.

Table 19
Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules

a. An owner and/or operator must implement one of the following control measures:
   1. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 m.p.h. and vehicular trips to no more than 20 per day per road;
   2. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or
   3. Implement control measures, as described in Table 3 (Unpaved Haul/Access Roads) of this rule.

Note: For Tables 20 & 21, control measures in [brackets] are to be applied only to dust generating operations outside the nonattainment area.

Table 20

Wind Event Control Measures-Dust Generating Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 m.p.h. and if dust generating operations are ceased for the remainder of the work day, stabilize the area;
   2. Apply water or other suitable dust suppressant at least twice [once] per hour, in compliance with Section 301 of this rule;
   3. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or
   4. Implement (a)(2) or (a)(3), above, and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site.

Table 21
Wind Event Control Measures-Temporary Disturbed Surface Areas
(After Work Hours, Weekends, Holidays)

a. An owner and/or operator must implement one of the following control measures:
   1. Uniformly apply and maintain surface gravel or dust suppressants, in compliance with Section 302.3 of this rule;
   2. Apply water to all disturbed surface areas 3 times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of 4 times per day;
   3. Apply water on open storage piles at least twice [once] per hour, in compliance with Section 302.3 of this rule; or
   4. Cover open storage piles with tarps, plastic, or other material such that wind will not remove the covering(s).
b. Suggested additional control measures for contingency plans:
   1. Implement a combination of the control measures listed in (a)(1) through (a)(4), above.

Adopted 06/16/99
Revised 02/16/00

APPENDIX C
FUGITIVE DUST TEST METHODS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
APPENDIX C
FUGITIVE DUST TEST METHODS

1. No change
2. No change
3. TIME AVERAGED METHODS OF VISUAL OPACITY DETERMINATION ~~OF OPACITY~~ OF EMISSIONS FROM ~~SOURCES FOR TIME-AVERAGED REGULATIONS~~ DUST GENERATING OPERATIONS

3.1 Applicability – This method is applicable for the determination of opacity ~~determination of the opacity of emissions~~ of fugitive dust plumes from ~~sources of visible emissions for time-averaged regulations~~ dust generating operations. A time-averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

3.2 No change

3.3 No change

3.3.1 No change

~~3.3.2 Procedures For Fugitive Dust Emissions. These procedures are applicable for the determination of the opacity of fugitive dust emissions by a qualified observer. The qualified observer should do the following:~~

~~a. Position. Stand at a position at least 5 meters from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Consistent as much as possible with maintaining the above requirements, make opacity observations from a position such that the line of sight is approximately perpendicular to the plume and wind direction. The observer may follow the fugitive dust plume generated by mobile earthmoving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, if multiple plumes are involved, do not include more than one plume in the line of sight at one time.~~

~~b. Field Records. Record the name of the site, fugitive dust source type (i.e., pile, material handling (i.e., transfer, loading, sorting)), method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also, record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive~~

~~dust source, and color of the plume and type of background on the visible emission observation from when opacity readings are initiated and completed.~~

~~c. Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of sight. For storage piles, make opacity observations approximately 1 meter above the surface from which the plume is generated. The initial observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume, but instead observe the plume momentarily at 15 second intervals. For fugitive dust from earthmoving equipment, make opacity observations approximately 1 meter above the mechanical equipment generating the plume.~~

~~d. Recording Observations. Record the opacity observations to the nearest 5% every 15 seconds on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 15 second period. If a multiple plume exists at the time of an observation, do not record an opacity reading. Mark an "x" for that reading. If the equipment generating the plume travels outside of the field of observation, resulting in the inability to maintain the orientation of the sun within the 140° sector or if the equipment ceases operating, mark an "x" for the 15 second interval reading. Readings identified as "x" shall be considered interrupted readings.~~

~~e. Data Reduction For Time-Averaged Regulations. For each set of 12 or 24 consecutive readings, calculate the appropriate average opacity. Sets must consist of consecutive observations, however, readings immediately preceding and following interrupted readings shall be deemed consecutive and in no case shall two sets overlap, resulting in multiple violations.~~

3.3.2 To determine the opacity of non-continuous dust plumes caused by activities including, but not limited to, bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes:

a. Position: Stand at least 25 feet from the dust generating operation in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Choose a discrete portion of the operation for observation, such as the unloading point, not the whole operation. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Initial Fallout zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

c. Field Records: Note the following on an observational record sheet:

1. Location of dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation;

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and

4. Color of the plume and type of background.

d. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make two observations per discrete activity, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

e. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. Repeat observations until you have recorded at least a total of 12 consecutive opacity readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed one hour. Observations immediately preceding and following interrupted observations can be considered consecutive (e.g., vehicle traveled in front of path, plume doubled-over).

f. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules.

3.3.3 To determine the opacity of continuous dust plumes caused by equipment and activities including but not limited to graders, trenchers, paddlewheels, blades, clearing, leveling, and raking

a. Position: Stand at least 25 feet from the dust generating operation to provide a clear view of the emissions with the sun oriented in the 140° sector to your back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction.

b. Dust Plume: Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes.

1. If a single piece of equipment is observed working, then all measurements should be taken off the resultant plume as long as the equipment remains within the 140° sector to the back.

2. If there are multiple related sources, or multiple related points of emissions of dust from a particular activity, or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140° sector to the back. Readings can be taken for more than one piece of equipment within the

discrete length of travel path within the 140° sector to the back.

c. Initial Fallout Zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

d. Field Records: Note the following on an observational record sheet:

1. Location of the dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation; and

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds).

e. Observations: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations at a point beyond the fallout zone. The observations should be made at the densest point. Observations will be made every 10 seconds until at least 12 readings have been recorded. Do not look continuously at the plume, but observe the plume momentarily at 10-second intervals. If the equipment generating the plume travels outside the field of observation or if the equipment ceases to operate.

f. Recording Observations: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 10-second period.

g. Data Reduction: Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules.

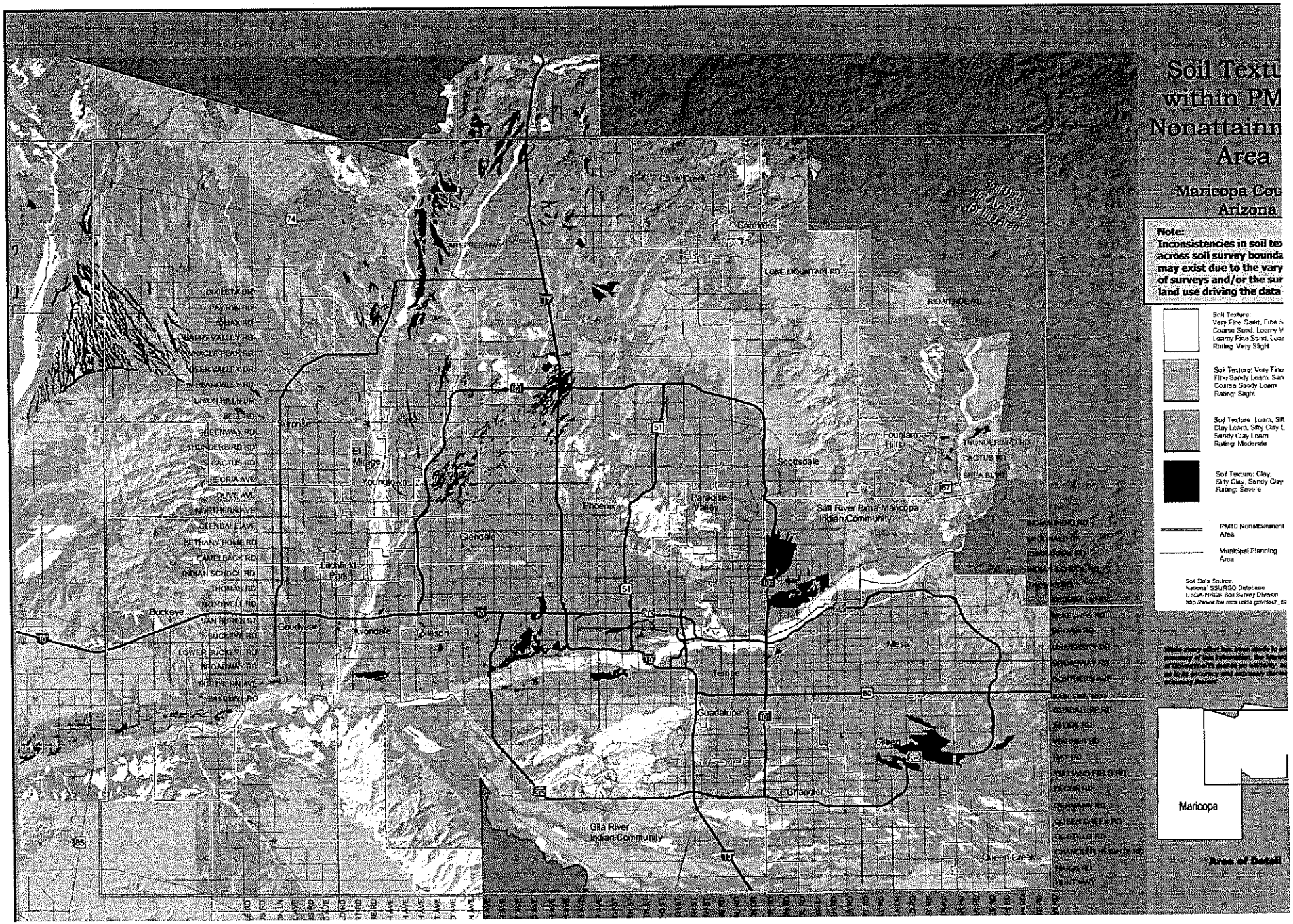
3.4 No Change.

APPENDIX F
SOIL DESIGNATIONS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
APPENDIX F
SOIL DESIGNATIONS

1. SOIL DESCRIPTIONS
   a. VERY SLIGHT SOIL TEXTURE – includes very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand.
   b. SLIGHT SOIL TEXTURE – includes very fine sandy loam, fine sandy loam, sandy loam, course sandy loam.
   c. MODERATE SOIL TEXTURE – includes loam, silt loam, clay loam, silty clay loam, sandy clay loam.
   b. SEVERE SOIL TEXTURE – includes clay, silty clay, sandy clay.
2. SOIL MAP


Soil Textu
within PM
Nonattainm
Area
Maricopa Cou
Arizona
Note:
Inconsistencies in soil te
across soil survey bounda
may exist due to the vary
of surveys and/or the sur
land use driving the data
Soil Texture:
Very Fine Sand, Fine S
Coarse Sand, Loamy V
Loamy Fine Sand, Loa
Rating: Very Slight
Soil Texture: Very Fine
Fine Sandy Loam, San
Coarse Sandy Loam
Rating: Slight
Soil Texture: Loam, Sil
Clay Loam, Silty Clay L
Sandy Clay Loam
Rating: Moderate
Soil Texture: Clay,
Silty Clay, Sandy Clay
Rating: Severe
PM10 Nonattainment
Area
Municipal Planning
Area
Soil Data Source:
National SSURGO Database
USDA-NRCS Soil Survey Division
Maricopa
Area of Detail
Soil Data
Not Available
Or Not Applicable
Cave Creek
Carefree
Scottsdale
Fountain
Hills
Paradise
Valley
Phoenix
Glendale
El
Mirage
Youngtown
Litchfield
Park
Buckeye
Goodyear
Avondale
Tolleson
Mesa
Tempe
Guadalupe
Gilbert
Chandler
Gila River
Indian Community
Queen Creek
Salt River Pima-Maricopa
Indian Community

Appendix 3

NOTICE OF PUBLIC HEARING
FOR MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS
AND STATE IMPLEMENTATION PLAN (SIP) REVISIONS

Notice is hereby given that the Maricopa County Board of Supervisors will conduct a public hearing on March 17, 2004 at 9:00 AM on proposed revisions to the Maricopa County Air Pollution Control Regulations, **RULE 310 (FUGITIVE DUST), APPENDIX C, AND APPENDIX F**. The Public Hearing will be held at the Maricopa County Board of Supervisors' Auditorium, 205 West Jefferson Street, Phoenix, Arizona. Call 602-506-0169 for current information. Copies of the final draft rules will be available at least 30 days prior to the hearing for public inspection at the offices of the Maricopa County Environmental Services Department, Air Quality Division, 1001 N. Central Ave. #201, Phoenix, AZ., 85004, phone 602-506-6010, and on the internet at http://www.maricopa.gov/envsvc/air/workshops.asp. A sign language interpreter, alternative form materials, or infrared assistive listening devices will be made available upon request with 72 hours notice. Additional reasonable accommodations will be made available to the extent possible within the time frame of the request. Requests should be made to 602-506-3751 or TTY 602-506-2000.

PUBLISH February 6, 2004 and February 13, 2004.

Appendix 4

THE RECORD REPORTER

~ SINCE 1914 ~

1505 N. Central Avenue, Suite 200, Phoenix, Arizona 85004-1725
Telephone (602) 417-9900 / Fax (602) 417-9910

DIANA NINO
MARICOPA AIR QUALITY DIV.
1001 N. CENTRAL AVE., RM. 200
PHOENIX, AZ 85004-1942

RR#: 637103

NOTICE OF PUBLIC HEARING FOR MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS AND STATE IMPLEMENTATION PLAN (SIP) REVISIONS Notice is hereby given that the Maricopa County Board of Supervisors will conduct a public hearing on March 17, 2004 at 9:00 AM on proposed revisions to the Maricopa County Air Pollution Control Regulations, RULE 310 (FUGITIVE DUST), APPENDIX C, AND APPENDIX F. The Public Hearing will be held at the Maricopa County Board of Supervisors' Auditorium, 205 West Jefferson Street, Phoenix, Arizona. Call 602-506-0169 for current information. Copies of the final draft rules will be available at least 30 days prior to the hearing for public inspection at the offices of the Maricopa County Environmental Services Department, Air Quality Division, 1001 N. Central Ave. #201, Phoenix, AZ., 85004, phone 602-506-6010, and on the internet at http://www.maricopa.gov/envsvc/air/workshops.asp. A sign language interpreter, alternative form materials, or infrared assistive listening devices will be made available upon request with 72 hours notice. Additional reasonable accommodations will be made available to the extent possible within the time frame of the request. Requests should be made to 602-506-3751 or TTY 602-506-2000.
02/11/04, 02/18/04

RR- 637103#

AFFIDAVIT OF PUBLICATION

Reference #:

Notice Type: MCHRG NOTICE OF HEARING

Ad Description: PUBLIC NOTICE

I, WENDY COOPER, am authorized by the publisher as agent to make this affidavit. Under oath, I state that the following is true and correct.

THE RECORD REPORTER is a newspaper of general circulation published Monday, Wednesday and Friday except legal holidays, in the County of Maricopa, State of Arizona. The copy hereto attached is a true copy of the advertisement as published on the following dates:

02/11/04, 02/18/04

Wendy Cooper

Subscribed and sworn to before me on the 18th day of February, 2004

Leona J. Gibson

OFFICIAL SEAL
LEONA J. GIBSON
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires Mar. 1, 2007

AFFIDAVIT OF PUBLICATION

AIR POLLUTION CONTROL REGULATIONS

1

Arizona Business Gazette
The Business Resource

PO BOX 194
Phoenix, Arizona 85001-0194
(602) 444-7300 FAX (602) 444-7364

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

Tom Bianco, being first duly sworn, upon oath depos and says: That he is the legal advertising manager the Arizona Business Gazette, a newspaper of gene circulation in the county of Maricopa, State of Arizo published weekly at Phoenix, Arizona, and that t copy hereto attached is a true copy of advertisement published in the said paper on the da indicated.

2/12/2004
2/19/2004

Sworn to before me this
19TH day of
FEBRUARY A.D. 2004

OFFICIAL SEAL
MARILYN GREENWOOD
NOTARY PUBLIC-ARIZONA
MARICOPA COUNTY
My Comm. Expires May 23, 2007

Notary Pu

NOTICE OF PUBLIC HEARING FOR MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS AND STATE IMPLEMENTATION PLAN (SIP) REVISIONS

Notice is hereby given that the Maricopa County Board of Supervisors will conduct a public hearing on March 17, 2004 at 9:00 AM on proposed revisions to the Maricopa County Air Pollution Control Regulations, RULE 310 (FUGITIVE DUST), APPENDIX C, AND APPENDIX F. The Public Hearing will be held at the Maricopa County Board of Supervisors' Auditorium, 205 West Jefferson Street, Phoenix, Arizona. Call 602-506-0169 for current information. Copies of the final draft rules will be available at least 30 days prior to the hearing for public inspection at the offices of the Maricopa County Environmental Services Department, Air Quality Division, 1001 N. Central Ave., #201, Phoenix, AZ., 85004, phone 602-506-6010, and on the internet at http://www.maricopa.gov/envsvc/air/workshops.asp. A sign language interpreter, alternative form materials, or infrared assistive listening devices will be made available upon request with 72 hours notice. Additional reasonable accommodations will be made available to the extent possible within the time frame of the request. Requests should be made to 602-506-3751 or TTY 602-506-2000. Published: February 12, 19, 2004

Appendix 5

COUNTY OF MARICOPA

State of Arizona

Office of the Clerk

Board of Supervisors

State of Arizona) *ss.*
County of Maricopa)

I, ***Norma Risch,*** *Deputy Clerk of the Board of Supervisors, do hereby certify that the attached is a true and correct excerpt from the minutes of the meeting of the* ***Board of Supervisors*** *held on* ***March 17, 2004:***

PUBLIC HEARING – ENVIRONMENTAL SERVICES – CONTINUED
(Attached)

IN WITNESS WHEREOF, *I have hereunto set my hand and affixed the Official Seal of the County of Maricopa. Done at Phoenix, the County Seat, on June 28, 2004.*

Norma Risch
Deputy Clerk of the Board of Supervisors

Environmental Services
cc: File

PUBLIC HEARING – ENVIRONMENTAL SERVICES - CONTINUED

The Chairman called for a public hearing, pursuant to ARS §49-479(b), to solicit comments on proposed revisions to Maricopa County Air Pollution Control Regulation Rule 310 (Fugitive Dust), Appendix C, and Appendix F and on submitting the rules as revisions to the (Arizona) State Implementation Plan (SIP). Following the public hearing, the Board is requested to adopt proposed revisions to the Maricopa County Air Pollution Control Regulations, Rule 310, Appendix C and F, and to submit the rules as revisions to the (Arizona) State Implementation Plan. (C88040317) (ADM2354)

Those registering an opinion or requesting to speak included Spencer Kamps, Home Builders Assn. Of Central Arizona, Corinda Q. Lozano, Amanda McGennis, AZ. Chapter of Associated General Contractors, Russell Bowers, Arizona Rock Products Association, John Bonnie and Duane Gilliland.

Al Brown, Director of Environmental Services, said this request addresses another revision to the Fugitive Dust Rules (Rule 310), which is necessary because the County still does not meet national standards for particulates in the greater Metro area. Health impacts from high particulates are well documented and he mentioned that Maricopa County is the third highest in the country for asthma and that the number of Valley Fever cases are increasing. He informed the Board that not meeting the standards of the Clean Air Act could have an economic impact on tourism and could result in a loss of highway funds. Mobile sources (trucks/heavy equipment) are the greatest factor in causing dust with construction related dust as the No. two source. The EPA found deficiencies in Rule 310 and asked that these be fixed. New testing methods have since been devised and he outlined some of the rule changes that have been made.

Supervisor Wilson voiced concerns about the use of water to control dust on construction sites and asked about the economic feasibility of using oil instead since it is used as a control agent on some roads.

Mr. Brown said that the southwestern desert is in one of the worst droughts ever and agreed that the conservation of water is a primary concern. He said that the rule does provide for options on water use, such as dust suppressants, which are mixed with water. These use less water and allow a less frequent application.

Russell (Rusty) Bowers, representing Arizona Rock Products Association, said their plants typically use 3 million gallons of water in dust suppression per plant each year. This control is demanded by the constant use of trucks on their roadways. He said the alternative suppressants are not effective with constant traffic. He expressed appreciation for the hard work that has gone into the newest draft of changes and said many of their concerns were addressed. He added that there were two main areas where his industry would like to see additional work done to enhance the revision. One stems from the supposition that the owner/operator of the jobsite is the "puppeteer" responsible for keeping all the contractors and subcontractors in line with all dust control requirements. Similarly, the owners used to be held responsible for code requirements and inspections and to show proficiency and knowledge in order to secure a license and keep it. His company feels that owners should cooperate with the County in developing manuals and seminars to train developers and subcontractors in fugitive dust regulations, and then hold them responsible. "We would like to see some type of developed, structured training and certification in combination with our different Associations as a way of keeping our people in line."

The second issue was related to the requirement to cover with plastic some of the stockpiling operations that are specific to the sand and gravel industry. He said, "Dirt makes aggregate worth less and ultimately worthless." There are different nuances in construction use depending on the dirt content and he

explained that there's a bottom line in the rock industry. The more dirt in the content of the aggregate product the less valuable that product is. That gets down to the chemistry of redi-mix and asphalt/concrete mixes. Dirt makes them weak so "we try to get as clean a product as possible to mix our products in." He spoke of big, conically shaped stockpiles in the sand and gravel operation – 100 ft in diameter and 60-80 feet tall. He said, "Think of your Freeway projects – when they went sublevel – that stockpile was almost a 1000 feet long and over 100 ft. in height." Because a stockpile is constantly being added to on top and removed from on the bottom. Regardless of the cost, just having to "put the tarps on and off, and on and off, would drive a plant operator crazy." He added that this concern was for active and not inactive stockpiles. He said they would like to work with the County on silt content and activity rather than trying to cover all those piles in active operations.

Supervisor Stapley asked what the solution was for the large stockpiles of aggregate sand because sediments and silts are inevitable, especially in urban areas with residential homes nearby. He said that in a wind storm the sand and dust would fly and become a very serious particulate problem.

Mr. Bowers said it is the dirt content in the pile that is the problem in a windstorm and they would like to have the language in the rule address it from that standpoint.

Amanda McGennis, appeared representing the Arizona Chapter Associated General Contractors (AGC), an association that has represented heavy highway contractors since 1934 and employs more than 30,000 workers statewide. She said, "We believe that the Maricopa County Environmental Services Department responded to industry's concerns and addressed our issues using the EPA framework required of them. This does not mean that we agree to the revisions that were made from draft #5 to the current rule submitted today." She cited specific areas in different sections of the revision with which the contractors disagree. She said, "We understand the challenges that you have to meet EPA's criteria and how you have to apply this to the reality of the construction activities." She said the AGC and their partners will consider the concerns raised today and asked that they be included in the revision to the rule prior to final Board approval.

Chairman Kunasek asked Ms. McGennis if she had any suggestions on the opacity standards that would be an improvement over the way it was changed.

She apologized and said they do not have anything to recommend as the industry had not gone to any problem sites to try to work with some of the County people on that issue. She added that opacity was subject to change from many different things. She believed the rule needs still further refinement. She suggested that a test group of industry personnel – not just regulatory personnel – might be able to work something out.

Motion was made by Supervisor Brock, seconded by Supervisor Wilcox, and unanimously carried (5-0) to continue this matter to the April 7, 2004, meeting for further study and negotiation.

COUNTY OF MARICOPA
State of Arizona

Office of the Clerk
Board of Supervisors

State of Arizona) *ss.*
County of Maricopa)

I, ***Norma Risch,*** *Deputy Clerk of the Board of Supervisors, do hereby certify that the attached is a true and correct excerpt from the DRAFT minutes of the meeting of the* ***Board of Supervisors*** *held on* ***April 7, 2004****:*

PUBLIC HEARING – ENVIRONMENTAL SERVICES – AIR QUALITY/FUGITIVE DUST

Rule 310

(Attached)

IN WITNESS WHEREOF, *I have hereunto set my hand and affixed the Official Seal of the County of Maricopa. Done at Phoenix, the County Seat, on May 25, 2004.*

Norma Risch
Deputy Clerk of the Board of Supervisors

Environmental Services
File

PUBLIC HEARING – ENVIRONMENTAL SERVICES – AIR QUALITY/FUGITIVE DUST

Chairman Kunasek called for a public hearing, pursuant to ARS §49-479(b), to solicit comments on proposed revisions to Maricopa County Air Pollution Control Regulation Rule 310 (Fugitive Dust), Appendix C, and Appendix F and on submitting the rules as revisions to the (Arizona) State Implementation Plan (SIP). Following the public hearing, the Board is requested to adopt proposed revisions to the Maricopa County Air Pollution Control Regulations, Rule 310, Appendix C and F, and to submit the rules as revisions to the (Arizona) State Implementation Plan. (This hearing continued from meeting of March 17, 2004.) (C88040317) (ADM2354)

PROPOSED AMENDMENTS TO RULE 310 AND APPENDIX F

All proposed new text is underlined and ~~strikeouts~~ indicate that existing text will be deleted.

1. **Section 201—narrow definition more closely matching the existing definition of public roadways.** Amend text by striking existing language and referring only to public roadways and retail parking lots.

201 **AREA ACCESSIBLE TO THE PUBLIC** – ~~Any area, whether publicly or privately owned, that the public may legally enter, or does commonly enter, including, but not limited to, roads, parking lots, access roads, driveways, alleys and easements. For the purpose of this definition, a paved area accessible to the public does not include a paved area that has been designated, in an approved Dust Control Plan, as a trackout control device.~~ Any retail parking lot or public roadway that is open to public travel primarily for purposes unrelated to the dust generating operation.

2. **Section 304.6 and Appendix F—delete references and map for shrink/swell potential.**

a. Delete Reference in Section 304.6. Amend the proposed new text in Section 304.6 by deleting the words, "and their shrink/swell potential".

304.6 For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil ~~and their shrink/swell potential~~ described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

b. Delete second map entitled "Soil Shrink/swell Potential" from Section 2 of Appendix F.

3. **Section 308.3(a)(1)—Change the proposed threshold for requiring a trackout control device from one to two acres.** Amend the text in Section 308.3(a)(1) by inserting the word "two" after the strikeout word "five", remove the strikeout from the word "acres", and delete the underlined words "one acre":

(1) ~~From~~ all work sites with a disturbed surface area of ~~five~~ two acres ~~one acre~~ or larger~~.~~, and

4. **Section 308.7—Change the threshold for water systems back to one acre.** Amend text in Section 308.7 by removing the strikeout from the words "1 acre" and deleting the underlined new text "½ acre":

308.7 **Soil Moisture ~~On Disturbed Surface Areas 1 Acre Or Larger~~:** If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earthmoving operations on disturbed surface areas 1 acre ~~½ acre~~ or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

Al Brown, Director of Maricopa County Environmental Services Department, reported that numerous meetings had been held with stakeholders, the E.P.A, trade associations and the County Attorney's Office to resolve issues that were noted by several related associations at the last Board meeting. Staff has amended the draft and he believes this set will eliminate concerns of the stakeholders. He explained these changes. He said that the air rules have been tightened to address the three deficiencies that were pointed out by the E.P.A. in 2002 so the rules will be more protective of our air quality and added that the consensus on this "is as close as we can get."

Supervisor Wilson asked to add the following, "The department shall work with the stakeholders to develop a R3-10 program for subcontractors, considering options that include subcontractor's permit, education and/or outreach programs." Al Brown agreed with this addition and offered any help that would be needed.

Amanda McGennis, Associated General Contractors, said that group was very appreciative of the efforts made by the County in the last few weeks since the continuance of this item from a previous meeting so further revisions could be made. She said they still want to go on record to say that some of the practices regarding the measures within the rule are still very prescriptive and go towards "micro-managing our business and don't go towards the realities of the day-to-day operations," but they are willing to work with the County on these and willing to further discuss ways of coming together. She also spoke of the "guidance document" of the E.P.A. and said they are working with the County on that document. "However," she added, "the guidance document is just that. It is not another enforcement tool but a tool for educating the public on fugitive dust emissions, and our industry and others providing dust-generating operations to move forward to reduce dust emissions and to be in containment by 2006."

Albert Atkin, Homebuilders Association of Central Arizona (HBACA), also thanked Al Brown and his staff for their efforts to resolve some of the HBACA concerns. He endorsed the addition made by Supervisor Wilson and said they look forward to helping address these very important issues. He thanked the Board for continuing this item at their last meeting for further discussion.

Motion was made by Supervisor Wilson, seconded by Supervisor Stapley, and unanimously carried (4-0-1) to approve the above changes to Maricopa County Air Pollution Control Regulation Rule 310 and to include the amendment added by Supervisor Wilson given above and the redline changes also given above.

Appendix 6

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 310
FUGITIVE DUST
INDEX

Revised 07/13/88
Revised 07/06/93
Revised 09/20/94
Revised 06/16/99
Revised 02/16/00
Revised 04/07/04

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310
FUGITIVE DUST

SECTION 100 - GENERAL

101 PURPOSE: To limit particulate matter emissions into the ambient air from any property, operation or activity that may serve as a fugitive dust source. The effect of this rule shall be to minimize the amount of PM10 entrained into the ambient air as a result of the impact of human activities by requiring measures to prevent, reduce, or mitigate particulate matter emissions.

102 APPLICABILITY: The provisions of this rule shall apply to all dust generating operations except for those dust generating operations listed in Section 103.

103 EXEMPTIONS: The following are exempt from the requirements of this rule: normal farm cultural practices under Arizona Revised Statutes (A.R.S.) §49-457 and §49-504.4, and open areas, vacant lots, unpaved parking lots, and unpaved roadways that are not located at sources that require any permit under these rules.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

201 AREA ACCESSIBLE TO THE PUBLIC – Any retail parking lot or public roadway that is open to public travel primarily for purposes unrelated to the dust generating operation.

202 BULK MATERIAL - Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), earth, soil, dirt, mud, demolition debris, cotton, trash, cinders, pumice, rock, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that are capable of producing fugitive dust.

203 BULK MATERIAL HANDLING, STORAGE, AND/OR TRANSPORTING OPERATION - The use of equipment, haul trucks, and/or motor vehicles, including, but not limited to, the loading, unloading, conveying, transporting, piling, stacking, screening, grading, or moving of bulk materials, that are capable of producing fugitive dust.

204 CONTROL MEASURE - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust. Control measures include, but are not limited to:

- 204.1 Curbing;
- 204.2 Paving;
- 204.3 Pre-wetting;
- 204.4 Applying dust suppressants;
- 204.5 Physically stabilizing with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization;
- 204.6 Limiting, restricting, phasing and/or rerouting motor vehicle access;
- 204.7 Reducing vehicle speeds and/or number of vehicle trips;
- 204.8 Limiting use of off-road vehicles on open areas and vacant lots;

204.9 Utilizing work practices and/or structural provisions to prevent wind and water erosion onto paved areas accessible to the public;

204.10 Appropriately using dust control implements;

204.11 Installing one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of a paved area accessible to the public to control carry-out and trackout;

204.12 Keeping open-bodied haul trucks in good repair, so that spillage may not occur from beds, sidewalls, and tailgates; and

204.13 Covering the cargo beds of haul trucks to minimize wind-blown dust emissions and spillage.

205 DISTURBED SURFACE AREA – A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust. For the purpose of this rule, an area is considered to be a disturbed surface area until the activity that caused the disturbance has been completed and the disturbed surface area meets the standards described in Section 301 and Section 302 of this rule.

206 DUST CONTROL IMPLEMENT – A tool, machine, equipment, accessory, structure, enclosure, cover, material or supply, including an adequate readily available supply of water and its associated distribution/delivery system, used to control fugitive dust emissions.

207 DUST CONTROL PLAN - A written plan describing all fugitive dust control measures.

208 DUST GENERATING OPERATION - Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

209 DUST SUPPRESSANT – Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer or any other dust palliative, which is not prohibited for ground surface application by the U.S. Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ) or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

210 EARTHMOVING OPERATION – The use of any equipment for an activity which may generate fugitive dust, such as but not limited to, cutting and filling, grading, leveling, excavating, trenching, loading or unloading of bulk materials, demolishing, blasting, drilling, adding to or removing bulk materials from open storage piles, back filling, soil mulching, landfill operations, or weed abatement by discing or blading.

211 FREEBOARD – The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

212 FUGITIVE DUST - The particulate matter not collected by a capture system, that is entrained in the ambient air, and is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

213 GRAVEL PAD – A layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter, that is maintained at the point of intersection of a paved area accessible to the public and a work site entrance to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to leaving the work site.

214 GRIZZLY – A device (i.e., rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles and/or haul trucks prior to leaving the work site.

215 HAUL TRUCK - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as, but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

216 MOTOR VEHICLE – A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

217 NORMAL FARM CULTURAL PRACTICE – All activities by the owner, lessee, agent, independent contractor, and/or supplier conducted on any facility for the production of crops and/or nursery plants. Disturbances of the field surface caused by turning under stalks, tilling, leveling, planting, fertilizing, or harvesting are included in this definition.

218 OFF-ROAD VEHICLE – Any self-propelled conveyance specifically designed for off-road use, including but not limited to, off-road or all-terrain equipment, trucks, cars, motorcycles, motorbikes, or motorbuggies.

219 OPEN AREAS AND VACANT LOTS - Any of the following described in Section 219.1 through Section 219.4 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one open area or vacant lot.

219.1 An unsubdivided or undeveloped tract of land adjoining a developed or partially developed residential, industrial, institutional, governmental, or commercial area.

219.2 A subdivided residential, industrial, institutional, governmental, or commercial lot that contains no approved or permitted buildings or structures of a temporary or permanent nature.

219.3 A partially developed residential, industrial, institutional, governmental, or commercial lot.

219.4 A tract of land, in the nonattainment area, adjoining agricultural property.

220 OWNER AND/OR OPERATOR – The person responsible for obtaining an earthmoving permit under Rule 200, Section 305, or any person who owns, leases, operates, controls, or supervises a dust generating operation subject to the requirements of this rule.

221 PAVE – To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt).

222 PUBLIC ROADWAYS – Any roadways that are open to public travel.

223 ROUTINE – Any dust generating operation which occurs more than 4 times per year or lasts 30 cumulative days or more per year.

224 SILT– Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.

225 TRACKOUT/CARRYOUT – Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

226 TRACKOUT CONTROL DEVICE - A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and a paved area accessible to the public that controls or prevents vehicular trackout.

227 UNPAVED HAUL/ACCESS ROAD – Any on-site unpaved road used by commercial, industrial, institutional, and/or governmental traffic.

228 UNPAVED PARKING LOT – Any area larger than 5,000 square feet that is not paved and that is used for parking, maneuvering, or storing motor vehicles.

229 UNPAVED ROAD – Any road or equipment path that is not paved. For the purpose of this rule, an unpaved road is not a horse trail, hiking path, bicycle path, or other similar path used exclusively for purposes other than travel by motor vehicles.

230 URBAN OR SUBURBAN OPEN AREA – The definition of urban or suburban open area is included in Section 219 (Definition Of Open Areas And Vacant Lots) of this rule.

231 VACANT LOT – The definition of vacant lot is included in Section 219 (Definition Of Open Areas And Vacant Lots) of this rule.

232 VACANT PARCEL – The definition of vacant parcel is included in Section 219 (Definition Of Open Areas And Vacant Lots) of this rule.

233 WIND-BLOWN DUST - Visible emissions, from any disturbed surface area, that are generated by wind action alone.

234 WIND EVENT – When the 60-minute average wind speed is greater than 25 miles per hour.

235 WORK SITE – Any property upon which any dust generating operations and/or earthmoving operations occur.

SECTION 300 – STANDARDS

301 OPACITY LIMITATION FOR DUST GENERATING OPERATIONS: The owner and/or operator of a dust generating operation shall not allow visible fugitive dust emissions to exceed 20% opacity as tested by methods described in Appendix C of these rules.

301.1 Wind Event: Exceedances of the opacity limit that occur due to a wind event shall constitute a violation of the opacity limit. However, it shall be an affirmative defense in an enforcement action if the owner and/or operator demonstrates all of the following conditions:

a. All control measures required were followed and 1 or more of the control measures in Tables 20 & 21 was applied and maintained;

b. The 20% opacity exceedance could not have been prevented by better application, implementation, operation, or maintenance of control measures;

c. The owner and/or operator compiled and retained records, in accordance with Section 502 (Recordkeeping) of this rule; and

d. The occurrence of a wind event on the day(s) in question is documented by records. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked.

301.2 Emergency Maintenance Of Flood Control Channels and Water Retention Basins: No opacity limitation shall apply to emergency maintenance of flood control channels and water retention basins, provided that control measures are implemented.

301.3 Vehicle Test And Development Facilities And Operations: No opacity limitation shall apply to vehicle test and development facilities and operations when dust is required to test and validate design integrity, product quality, and/or commercial acceptance, if such testing is not feasible within enclosed facilities.

302 STABILIZATION REQUIREMENTS FOR DUST GENERATING OPERATIONS:

302.1 Unpaved Parking Lot: The owner and/or operator of any unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:

a. Shall not allow silt loading equal to or greater than 0.33 oz/ft2 , or
b. Shall not allow the silt content to exceed 8%.

302.2 Unpaved Haul/Access Road:

a. The owner and/or operator of any unpaved haul/access road (whether including at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall not allow visible fugitive dust emissions to exceed 20% opacity, and either:
    1. Shall not allow silt loading equal to or greater than 0.33 oz/ft2; or
    2. Shall not allow the silt content to exceed 6%.
b. The owner and/or operator of any unpaved haul/access road (including at a work site that is under construction or a work site that is temporarily or permanently inactive) shall, as an alternative to meeting the stabilization requirements for an unpaved haul/access road, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this subsection, the owner and/or operator must include, in a Dust Control Plan, the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

302.3 Open Area And Vacant Lot Or Disturbed Surface Area: The owner and/or operator of an open area and/or vacant lot or any disturbed surface area on which no activity is occurring (including at a work site that is under construction or a work site that is temporarily or permanently inactive) shall meet at least 1 of the standards described in Sections 302.3(a) through 302.3(g) below, as applicable. Should a disturbed open area and/or vacant lot or any disturbed surface area on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if the area is not maintained in a manner that meets at least 1 of the standards listed below, as applicable.

a. Maintain a visible crust;
b. Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;
c. Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;
d. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%;
e. Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is

equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;

f. Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

g. Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

302.4 Vehicle Test And Development Facilities And Operations: No stabilization requirement shall apply to vehicle test and development facilities and operations when dust is required to test and validate design integrity, product quality, and/or commercial acceptance, if such testing is not feasible within enclosed facilities.

303 DUST CONTROL PLAN REQUIRED:

303.1 The owner and/or operator of a dust generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre, including both of the following situations:

a. When submitting an application for an earthmoving permit involving earthmoving operations that would equal or exceed 0.10 acre, and

b. Before commencing any routine dust generating operation at a site that has obtained or must obtain a Title V, Non-Title V, or general permit under Regulation II (Permits And Fees) of these rules.

Compliance with this section does not affect an owner and/or operator's responsibility to comply with the other standards of this rule. The Dust Control Plan shall describe all control measures to be implemented before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

303.2 A Dust Control Plan shall, at a minimum, contain all the information described in Section 304 of this rule. The Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan is deemed to be a violation of this rule. Regardless of whether an approved Dust Control Plan is in place or not, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times. In addition, the owner and/or operator of a source with an approved Dust Control Plan is still subject to all of the requirements of this rule, even if such owner and/or operator is complying with the approved Dust Control Plan.

303.3 At least one primary control measure and one contingency control measure must be identified in the Dust Control Plan for all fugitive dust sources. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s). If the identified contingency control measure is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.

303.4 A Dust Control Plan shall not be required for any of the following activities:

a. To play on or maintain a field used for non-motorized sports;

b. For landscape maintenance, which, for the purpose of this rule, does not include grading, trenching, nor or any other mechanized surface disturbing activities; and

c. To establish initial landscapes or to redesign existing landscapes of legally-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, city parks, county regional parks, ballfields, camp sites, and playgrounds at camp sites; hiking paths, horse trails, and bicycle paths that are used exclusively for purposes other than travel by motor vehicles; (for the purpose of this rule, establishing initial landscapes or redesigning existing landscapes does not include grading, trenching, or any other mechanized surface disturbing activities).

304 ELEMENTS OF A DUST CONTROL PLAN: A Dust Control Plan shall contain, at a minimum, all of the following information:

304.1 Name(s), address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust generating operation.

304.2 A drawing, on 8½" x 11" paper, that shows:

a. Entire project site/facility boundaries,
b. Acres to be disturbed with linear dimensions,
c. Nearest public roads,
d. North arrow, and
e. Planned exit locations onto paved areas accessible to the public.

304.3 Control measures, or a combination thereof, to be applied to all actual and potential dust generating operations, before, after, and while conducting any dust generating operation, including during weekends, after work hours, and on holidays.

a. All required control measures from Tables 1-21 and at least one contingency control measure must be identified, for all dust generating operations. Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s). If the identified contingency control measure(s) is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan under Section 305 of this rule.
b. Alternatively, a control measure(s) that is not listed in Tables 1-21 of this rule may be chosen, provided that such control measure(s) is implemented to comply with the standard(s) described in Section 301 and Section 302 of this rule, as determined by the corresponding test method(s), as applicable, and meets other applicable standard(s) set forth in this rule.
c. If complying with Section 302.2(b) (Stabilization Requirements For Fugitive Dust Sources-Unpaved Haul/Access Road) of this rule, the Dust Control Plan must include the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

304.4 Dust suppressants to be applied, including all of the following product specifications or label instructions for approved usage:

a. Method, frequency, and intensity of application;
b. Type, number, and capacity of application equipment; and
c. Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.

Specific surface treatment(s) and/or control measures utilized to control material trackout and sedimentation where unpaved and/or access points join paved areas accessible to the public.

304.5 For construction projects one acre or larger, except for routine maintenance and repair done under a block permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F.

305 DUST CONTROL PLAN REVISIONS:

305.1 If the Control Officer determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any dust generating operation still exceed standards in Section 301 and Section 302 of this rule, then the Control Officer shall issue a written notice to the owner and/or operator of the dust generating operation explaining such determination.

305.2 The owner and/or operator of a dust generating operation shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or operator is preparing revisions to the approved Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

306 CONTROL MEASURES:

306.1 The owner and/or operator of a dust generating operation shall implement control measures before, after, and while conducting operations, including during weekends, after work hours, and on holidays, in accordance with Section 304.3 and Tables 1-21 of this rule.

306.2 For the purpose of this rule, any control measure that is implemented must achieve the applicable standard(s) described in Sections 301 and 302 of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule.

306.3 Failure to comply with the provisions of Section 308 (Work Practices) of this rule, as applicable, and/or of an approved Dust Control Plan, is deemed a violation of this rule.

306.4 Regardless of whether a dust generating operation is in compliance with an approved Dust Control Plan, or there is no approved dust control plan, the owner and/or operator of a dust generating operation is still subject to all requirements of this rule at all times.

307 PROJECT INFORMATION SIGN: For all sites with an earthmoving permit that are five acres or larger, except for routine maintenance and repair done under a block permit, the owner and/or operator shall erect and maintain a project information sign at the main entrance, that is readable by the public. Such sign shall have a white background, have black block lettering that is at least four inches high, and shall contain at least all of the following information:

307.1 Project name and permit holder,

307.2 Earthmoving Permit number,

307.3 Name and phone number of person(s) responsible for conducting the project, and

307.4 Text stating: "Dust Complaints? Call Maricopa County Environmental Services Department (insert the current/accurate phone number for the complaint phone line)."

308 WORK PRACTICES: When engaged in the following specific activities, the owner and/or operator of a dust generating operation shall comply with the following work

practices in addition to implementing, as applicable, the control measures described in Tables 1-21 of this rule.

308.1 Bulk Material Hauling Off-Site Onto Paved Areas Accessible to the Public: Notwithstanding other sections of this rule, the owner and/or operator of a dust generating operation and the owner and/or operator of a haul truck shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches;
b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);
c. Cover all haul trucks with a tarp or other suitable closure; and
d. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

308.2 Bulk Material Hauling On-Site Within the Boundaries of The Work Site: When crossing a paved area accessible to the public while construction is underway, the owner and/or operator of a dust generating operation shall do all of the following:

a. Load all haul trucks such that the freeboard is not less than three inches;
b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
c. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site. Examples of trackout control devices are described in Table 17 of this rule.

308.3 Trackout, Carry-Out, Spillage, and/or Erosion: The owner and/or operator of a dust generating operation shall do all of the following:

a. Install, maintain and use a suitable trackout control device (examples of trackout control devices are described in Table 17 – Trackout Control of this rule) that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such operation at all exits onto paved areas accessible to the public from both of the following:
   (1) All work sites with a disturbed surface area of two acres or larger, and
   (2) All work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day.
b. Clean up, trackout, carry-out, spillage, and/or erosion, on the following time-schedule:
   (1) Immediately, when trackout, carry-out, or spillage extends a cumulative distance of 50 linear feet or more; and
   (2) At the end of the workday, for all other trackout, carry-out, spillage, and/or erosion.

308.4 Unpaved Haul/Access Roads: The owner and/or operator of a dust generating operation shall implement one or more control measure(s) described in Table 3 – Unpaved Haul/Access Roads of this rule, before using or maintaining unpaved haul/access roads.

308.5 Easements, Rights-Of-Way, and Access Roads for Utilities (Electricity, Natural Gas, Oil, Water, and Gas Transmission) Associated with Sources that have a Non-Title V Permit, a Title V Permit, and/or a General Permit under These Rules: The owner and/or operator of a dust generating operation shall do at least one of the following:

a. Inside the PM_{10} nonattainment area, restrict vehicular speeds to 15 miles per hour and vehicular trips to no more than 20 per day per road;
b. Outside the PM_{10} nonattainment area, restrict vehicular trips to no more than 20 per day per road; or
c. Implement control measures, as described in Table 3 – Unpaved Haul/Access Roads of this rule.

308.6 Open Storage Piles: For the purpose of this rule, an open storage pile is any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-96A or other equivalent method approved in writing by the Control Officer and the Administrator of EPA, that the silt content is less than 5%. The owner and/or operator of such dust generating operation shall comply with all of the following:

a. Prior to and/or while conducting stacking, loading, and unloading operations, comply with one of the following work practices:
   (1) Spray material with water, as necessary; or
   (2) Spray material with a dust suppressant other than water, as necessary.
b. When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:
   (1) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings;
   (2) Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content;
   (3) Meet one of the stabilization requirements described in Section 302.3 of this rule; or
   (4) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this subsection, the owner and/or operator must also implement either Section 308.6(b)(2) or Section 308.6(b)(3) above.

308.7 Soil Moisture: If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earthmoving operations on disturbed surface areas 1 acre or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

308.8 Weed Abatement by Discing or Blading: The owner and/or operator of a dust generating operation shall comply with all of the following during weed abatement procedures by discing or blading:

a. Apply water before weed abatement by discing or blading occurs; and

b. Apply water while weed abatement by discing or blading is occurring; and

c. Either:

(1) Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs; or

(2) Establish vegetative ground cover in sufficient quantity, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 DUST CONTROL PLAN POSTING: The owner and/or operator of an earthmoving operation shall post a copy of the approved Dust Control Plan in a conspicuous location at the work site, within on-site equipment, or in an on-site vehicle, or shall otherwise keep a copy of the approved Dust Control Plan available on-site at all times. The owner and/or operator of a dust generating operation that has been issued a Block Permit shall not be required to keep a copy of the 8½" by 11" site drawing according to section 304.2 of this rule.

402 COMPLIANCE SCHEDULE: The requirements of this rule supercede any conflicting requirements that may be found in existing Dust Control Plans.

402.1 For Earthmoving Permits: If any changes to a Dust Control Plan, associated with an Earthmoving Permit, are necessary as a result of the most recent revisions of this rule, such changes shall not be required until the Earthmoving Permit is required to be renewed.

402.2 For Non-Title V Permits And For Title V Permits: If any changes to a Dust Control Plan, associated with a Non-Title V Permit or with a Title V Permit, are necessary as a result of the most recent revisions of this rule, then the owner and/or operator shall submit a revised Dust Control Plan to the Control Officer, according to the minor permit revision procedures described in Rule 220 and Rule 210 of these rules respectively, no later than 6 months after the effective date of the most recent revisions to this rule.

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: To determine compliance with this rule, the following test methods shall be followed:

501.1 Opacity Observations:

a. Dust Generating Operations: Opacity observations of a source engaging in dust generating operations shall be conducted in accordance with Appendix C, Section 3 (Time Averaged Methods of Visual Opacity Determination of Emissions from Dust Generating Operations).

b. Unpaved Parking Lot: Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

c. Unpaved Haul/Access Road: Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization For Unpaved Roads And Unpaved Parking Lots) of these rules.

501.2 Stabilization Observations:

a. Unpaved Parking Lot: Stabilization observations for unpaved parking lots shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules. When more than 1 test method is permitted for a determination, an exceedance of the

limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

b. Unpaved Haul/Access Road: Stabilization observations for unpaved haul/access roads (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rule. When more than 1 test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

c. Open Area And Vacant Lot Or Disturbed Surface Area: Stabilization observations for an open area and vacant lot or any disturbed surface area on which no activity is occurring (whether at a work site that is under construction, at a work site that is temporarily or permanently inactive) shall be conducted in accordance with at least one of the techniques described in subsection 501.2(c)(1) through subsection 501.2(c)(7) below, as applicable. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if such inactive disturbed surface area is not maintained in a manner that meets at least 1 of the standards described in subsection 302.3 of this rule, as applicable.

(1) Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules for a visible crust; or

(2) Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher; or

(3) Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or

(4) Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; or

(5) Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or

(6) Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements; or

(7) An alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

502 RECORDKEEPING:

502.1 Any person who conducts dust generating operations that require a Dust Control Plan shall keep a daily written log recording the actual application or implementation of the control measures delineated in the approved Dust Control Plan (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps).

502.2 Any person who conducts dust generating operations that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

502.3 Upon verbal or written request by the Control Officer, the log or the records and supporting documentation shall be provided within 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

503 RECORDS RETENTION: Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least six months following the termination of the dust generating operation. Copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation shall be retained for at least 1 year from the date such records were initiated. If a person has obtained a Title V Permit and is subject to the requirements of this rule, then such person shall retain records required by this rule for at least 5 years from the date such records are established.

504 TEST METHODS ADOPTED BY REFERENCE: The test methods listed in this section are adopted by reference. These adoptions by reference include no future editions or amendments. Copies of the test methods listed in this section are available for review at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

504.1 ASTM Method C136-96A ("Standard Test Method For Sieve Analysis Of Fine And Coarse Aggregates"), 1996 edition.

504.2 ASTM Method D2216-98 ("Standard Test Method For Laboratory Determination Of Water (Moisture) Content Of Soil And Rock By Mass"), 1998 edition.

504.3 ASTM Method D1557-91(1998) ("Test Method For Laboratory Compaction Characteristics Of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)"), 1998 edition.

Table 1

Vehicle Use In Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Restrict trespass by installing signs; or
   2. Install physical barriers such as curbs, fences, gates, posts, signs, shrubs, and/or trees to prevent access to the area.

Table 2

Unpaved Parking Lots

a. An owner and/or operator must implement one of the following control measures:
   1. Pave;
   2. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.1 of this rule; or
   3. Apply a suitable dust suppressant in compliance with Section 302.1 of this rule.
b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h. on the site.

Table 3

Unpaved Haul/Access Roads

a. An owner and/or operator must implement one of the following control measures:
   1. Limit vehicle speed to 15 m.p.h or less and limit vehicular trips to no more than 20 day;
   2. Apply water, so that the surface is visibly moist in compliance with Section 302.2 of this rule;
   3. Pave;
   4. Apply and maintain gravel, recycled asphalt, or other suitable material, in compliance with Section 302.2 of this rule; or
   5. Apply a suitable dust suppressant, in compliance with Section 302.2 of this rule.

Table 4

Open Areas And Vacant Lots

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 5

Disturbed Surface Areas – Pre-Activity Work Practices

a. Before activity begins, an owner and/or operator must implement one of the following control measures:
   1. Pre-water site to depth of cuts, allowing time for penetration; or
   2. Phase work to reduce the amount of disturbed surface areas at any one time.

Table 6

Disturbed Surface Areas – Work Practices During Operations

a. During operations, an owner and/or operator must implement one of the following control measures:
   1. Apply water or other suitable dust suppressant, in compliance with Section 301 of this rule;
   2. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or

3. Implement (a)(1) or (a)(2) above and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of windblown material leaving a site.

b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h on the work site.

Table 7
Disturbed Surface Areas – Temporary Stabilization (Up To 8 Months)
During Weekends, After Work Hours, And On Holidays

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Implement (a)(1) or (a)(2), above, and restrict vehicular access to the area.

Table 8
Disturbed Surface Areas – Permanent Stabilization
(Required Within 8 Months Of Ceasing Dust Generating Operations)

a. An owner and/or operator must implement one of the following control measures to comply with Section 302.3 of this rule:
   1. Pave, apply gravel, or apply a suitable dust suppressant;
   2. Establish vegetative ground cover in sufficient quantity; or
   3. Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

Table 9
Blasting Operations

a. An owner and/or operator must implement all of the following control measures:
   1. In wind gusts above 25 m.p.h., discontinue blasting; and
   2. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

Table 10
Demolition Activities

a. An owner and/or operator must implement all of the following control measures:
   1. Stabilize demolition debris. Apply water to debris immediately following demolition activity; and
   2. Stabilize surrounding area immediately following demolition activity. Water all disturbed soil surfaces to establish a crust and prevent wind erosion of soil.

b. Suggested additional control measure for contingency plans:
   1. Thoroughly clean blast debris from paved and other surfaces following demolition activity.

Table 11
Bulk Material Handling Operations
Work Practices For Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Spray material with water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading;
   2. Spray material with a dust suppressant other than water, as necessary, prior to stacking, loading, and unloading, and/or while stacking, loading, and unloading.

b. Suggested additional control measures for contingency plans:
   1. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.
   2. Remove material from the downwind side of the storage pile when safe to do so.

3. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Table 12
Open Storage Piles
When Not Conducting Stacking, Loading, And Unloading Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Cover open storage piles with tarps, plastic, or other material such that the coverings will not be dislodged by wind;
   2. Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98, or other equivalent methods approved by the Control Officer and the Administrator of the EPA; or for areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent methods approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the soil moisture content;
   3. Meet the stabilization requirements described in Section 302.3 of this rule; or
   4. Implement (a)(2) or (a)(3), above, and construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.

Table 13
Bulk Material Hauling/Transporting Within The Boundaries Of The Work Site
When Crossing A Paved Area Accessible To The Public
While Construction Is Underway

a. An owner and/or operator must implement all of the following control measures:
   1. Load all haul trucks such that the freeboard is not less than 3 inches when crossing a paved area accessible to the public while construction is underway;
   2. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);
   3. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site.
b. Suggested additional control measure for contingency plans:
   1. Limit vehicle speeds to 15 m.p.h. on the work site.

Table 14
Bulk Material Hauling/Transporting When On-Site Hauling/Transporting
Within The Boundaries Of The Work Site But Not Crossing
A Paved Area Accessible To The Public

a. An owner and/or operator must implement one of the following control measures:
   1. Limit vehicular speeds to 15 m.p.h. or less while traveling on the work site;
   2. Apply water to the top of the load in compliance with Section 301 of this rule; or
   3. Cover haul trucks with a tarp or other suitable closure.

Table 15
Bulk Material Hauling/Transporting Off-Site Hauling/Transporting
Onto Paved Areas Accessible To The Public

a. An owner and/or operator must implement all of the following control measures:
   1. Cover haul trucks with a tarp or other suitable closure;
   2. Load all haul trucks such that the freeboard is not less than 3 inches;
   3. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and
   4. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.

Table 16

Clean Up Of Trackout, Carry Out, Spillage, And Erosion

a. An owner and/or operator must implement one of the following control measures:
   1. Operate a street sweeper or wet broom with sufficient water, at the speed recommended by the manufacturer and at the frequency(ies) described in Section 308.3 of this rule; or
   2. Manually sweep up deposits in compliance with Section 308.3 of this rule.

Table 17

Trackout Control

a. An owner and/or operator must implement all of the following control measures:
   1. Immediately clean up trackout that exceeds 50 feet. All other trackout must be cleaned up at the end of the workday; and
   2. In accordance with Section 308.3(a), prevent trackout by implementing one of the following control measures:
      i. At all access points, install a grizzly or wheel wash system.
      ii. At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep, in compliance with Section 213 of this rule.
      iii. Pave starting from the point of intersection with a paved area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.

b. Suggested additional control measures for contingency plans:
   1. Clearly establish and enforce traffic patterns to route traffic over selected trackout control devices.
   2. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.
   3. Pave construction activity roadways as soon as possible.

Table 18

Weed Abatement By Discing Or Blading

a. An owner and/or operator must implement all of the following control measures:
   1. Pre-water site;
   2. Apply water while weed abatement by discing or blading is occurring; and
   3. Stabilize area by implementing either one of the following:
      i. Pave, apply gravel, apply water, or apply a suitable dust suppressant, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs; or
      ii. Establish vegetative ground cover in sufficient quantity, in compliance with Section 302.3 of this rule, after weed abatement by discing or blading occurs.

b. Suggested additional control measures for contingency plans
   1. Limit vehicle speeds to 15 m.p.h. during discing and blading operations.

Table 19

Easements, Rights-Of-Way, And Access Roads For Utilities (Electricity, Natural Gas, Oil, Water, And Gas Transmission) Associated With Sources That Have A Non-Title V Permit, A Title V Permit, And/Or A General Permit Under These Rules

a. An owner and/or operator must implement one of the following control measures:
   1. Inside the PM10 nonattainment area, restrict vehicular speeds to 15 m.p.h. and vehicular trips to no more than 20 per day per road;
   2. Outside the PM10 nonattainment area, restrict vehicular trips to no more than 20 per day per road; or
   3. Implement control measures, as described in Table 3 (Unpaved Haul/Access Roads) of this rule.

Note: For Tables 20 & 21, control measures in [brackets] are to be applied only to dust generating operations outside the nonattainment area.

Table 20

Wind Event Control Measures-Dust Generating Operations

a. An owner and/or operator must implement one of the following control measures:
   1. Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 m.p.h. and if dust generating operations are ceased for the remainder of the work day, stabilize the area;
   2. Apply water or other suitable dust suppressant at least twice [once] per hour, in compliance with Section 301 of this rule;
   3. Apply water as necessary to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-98 or other equivalent method as approved by the Control Officer and the Administrator of EPA. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-91 (1998) or other equivalent method approved by the Control Officer and the Administrator of EPA, maintain at least 70% of the optimum soil moisture content; or
   4. Implement (a)(2) or (a)(3), above, and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site.

Table 21

Wind Event Control Measures-Temporary Disturbed Surface Areas

(After Work Hours, Weekends, Holidays)

a. An owner and/or operator must implement one of the following control measures:
   1. Uniformly apply and maintain surface gravel or dust suppressants, in compliance with Section 302.3 of this rule;
   2. Apply water to all disturbed surface areas 3 times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of 4 times per day;
   3. Apply water on open storage piles at least twice [once] per hour, in compliance with Section 302.3 of this rule; or
   4. Cover open storage piles with tarps, plastic, or other material such that wind will not remove the covering(s).
b. Suggested additional control measures for contingency plans:
   1. Implement a combination of the control measures listed in (a)(1) through (a)(4), above.

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APPENDIX C
FUGITIVE DUST TEST METHODS

INDEX

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
APPENDIX C
FUGITIVE DUST TEST METHODS

1. RESERVED

2. TEST METHODS FOR STABILIZATION

2.1 For Unpaved Roads And Unpaved Parking Lots.

2.1.1 Opacity Test Method. The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved roads and unpaved parking lots. This method can only be conducted by an individual who has received certification as a qualified observer. Qualification and testing requirements can be found in Section 3.4 of this appendix.

a. Step 1: Stand at least 16.5 feet from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Step 2: Record the fugitive dust source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also, record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the fugitive dust source, and color of the plume and type of background on the visible emission observation from both when opacity readings are initiated and completed.

c. Step 3: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero

seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

d. Step 4: Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

e. Step 5: Repeat Step 3 (Subsection 2.1.1(c) of this appendix) and Step 4 (Subsection 2.1.1(d) of this appendix) until you have recorded a total of 12 consecutive opacity readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

f. Step 6: Average the 12 opacity readings together. If the average opacity reading equals 20% or lower, the source is in compliance with the opacity standard described in Rule 310 of these rules.

2.1.2 Silt Content Test Method. The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots. The higher the silt content, the more fine dust particles that are released when cars and trucks drive on unpaved roads and unpaved parking lots.

a. Equipment:

(1) A set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm and 0.25 mm (or a set of standard/commonly available sieves), a lid, and collector pan.

(2) A small whisk broom or paintbrush with stiff bristles and dustpan 1 ft. in width (The broom/brush should preferably have one, thin row of bristles no longer than 1.5 inches in length).

(3) A spatula without holes.

(4) A small scale with half-ounce increments (e.g. postal/package scale).

(5) A shallow, lightweight container (e.g. plastic storage container).

(6) A sturdy cardboard box or other rigid object with a level surface.

(7) A basic calculator.

(8) Cloth gloves (optional for handling metal sieves on hot, sunny days).

(9) Sealable plastic bags (if sending samples to a laboratory).

(10) A pencil/pen and paper.

b. Step 1: Look for a routinely traveled surface, as evidenced by tire tracks. [Only collect samples from surfaces that are not damp due to precipitation or dew. This statement is not meant to be a standard in itself for dampness where watering is being used as

a control measure. It is only intended to ensure that surface testing is done in a representative manner.] Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is < 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1 cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.

- At this point, you can choose to place the sample collected into a plastic bag or container and take it to an independent laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

c. Step 2: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.

d. Step 3: Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

e. Step 4: Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush. (On windy days, use the trunk or door of a car as a wind barricade.) Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways for at least 1 minute.

f. Step 5: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass (e.g., material in each sieve (besides the top sieve that captures a range of larger elements) should look the same size). If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute. (You only need to reassemble the sieve(s) that contain material, which requires further sifting.)

g. Step 6: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves -- only the collector pan. Weigh the container with the material from the collector pan and record its weight.

h. Step 7: If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an unpaved parking lot, multiply

the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 (Subsection 2.1.2(c) of this appendix) and multiply by 100 to estimate the percent silt content.

i. Step 8: Select another two routinely traveled portions of the unpaved road or unpaved parking lot and repeat this test method. Once you have calculated the silt loading and percent silt content of the 3 samples collected, average your results together.

j. Step 9: Examine Results. If the average silt loading is less than 0.33 oz/ft², the surface is STABLE. If the average silt loading is greater than or equal to 0.33 oz/ft², then proceed to examine the average percent silt content. If the source is an unpaved road and the average percent silt content is 6% or less, the surface is STABLE. If the source is an unpaved parking lot and the average percent silt content is 8% or less, the surface is STABLE. If your field test results are within 2% of the standard (for example, 4%-8% silt content on an unpaved road), it is recommended that you collect 3 additional samples from the source according to Step 1 (Subsection 2.1.2(b) of this appendix) and take them to an independent laboratory for silt content analysis.

k. Independent Laboratory Analysis: You may choose to collect 3 samples from the source, according to Step 1 (Subsection 2.1.2(b) of this appendix), and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is:
"Procedures For Laboratory Analysis Of Surface/Bulk Dust Loading Samples", (Fifth Edition, Volume I, Appendix C.2.3 "Silt Analysis", 1995), AP-42, Office of Air Quality Planning & Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina.

2.2 Stabilization Limitations For Open Areas And Vacant Lots. The test methods described in Section 2.3 through Section 2.7 of this appendix shall be used to determine whether an open area or a vacant lot has a stabilized surface. Should a disturbed open area or vacant lot contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Section 2.3 through Section 2.7 of this appendix, and include or eliminate it from the total size assessment of disturbed surface area(s) depending upon test method results.

2.3 Visible Crust Determination.

2.3.1 Where a visible crust exists, drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16-17 grams from a distance of 30 centimeters (one foot) directly above (at a 90° angle perpendicular to) the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the visible crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of a vacant lot which have not originated from the representative vacant lot surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Section 2.4 of this appendix to the loose material to determine whether the surface is stabilized.

2.3.2 A sufficient crust is defined under the following conditions: once a ball has been dropped according to subsection 2.3.1. of this appendix, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removing the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.

2.3.3 Drop the ball three times within a survey area that measures 1 foot by 1 foot and that represents a random portion of the overall disturbed conditions of the site. The survey area shall be considered to have passed the Visible Crust Determination Test if at least two out of the three times that the ball was dropped, the results met the criteria in subsection 2.3.2 of this appendix. Select at least two other survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of subsection 2.3.2 of this appendix for all of the survey areas tested, then the site shall be considered to have passed the Visible Crust Determination Test and shall be considered sufficiently crusted.

2.3.4 At any given site, the existence of a sufficient crust covering one portion of the site may not represent the existence or protectiveness of a crust on another portion of the site. Repeat the visible crust test as often as necessary on each random portion of the overall conditions of the site for an accurate assessment.

2.4 Determination Of Threshold Friction Velocity (TFV). For disturbed surface areas that are not crusted or vegetated, determine threshold friction velocity (TFV) according to the following sieving field procedure (based on a 1952 laboratory procedure published by W. S. Chepil).

2.4.1 Obtain and stack a set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm or obtain and stack a set of standard/commonly available sieves. Place the sieves in order according to size openings, beginning with the largest size opening at the top. Place a collector pan underneath the bottom (0.25 mm) sieve. Collect a sample of loose surface material from an area at least 30 cm by 30 cm in size to a depth of approximately 1 cm using a brush and dustpan or other similar device. Only collect soil samples from dry surfaces (i.e. when the surface is not damp to the touch). Remove any rocks larger than 1 cm in diameter from the sample. Pour the sample into the top sieve (4 mm opening) and cover the sieve/collector pan unit with a lid. Minimize escape of particles into the air when transferring surface soil into the sieve/collector pan unit. Move the covered sieve/collector pan unit by hand using a broad, circular arm motion in the horizontal plane. Complete twenty circular arm movements, ten clockwise and ten counterclockwise, at a speed just necessary to achieve some relative horizontal motion between the sieves and the particles. Remove the lid from the sieve/collector pan unit and disassemble each sieve separately beginning with the largest sieve. As each sieve is removed, examine it for loose particles. If loose particles have not been sifted to the finest sieve through which they can pass, reassemble and cover the sieve/collector pan unit and gently rotate it an additional ten times. After disassembling the sieve/collector pan unit, slightly tilt and gently tap each sieve and the collector pan so that material aligns along one side. In doing so, minimize escape of particles into the air. Line up the sieves and collector pan in a row and visibly inspect the relative quantities of catch in order to determine which sieve (or whether the collector pan) contains the greatest volume of material. If a visual determination of relative volumes of catch among sieves is difficult, use a graduated cylinder to measure the volume. Estimate TFV for the sieve catch with the greatest volume

using Table 1 of this appendix, which provides a correlation between sieve opening size and TFV.

Table 1. Determination Of Threshold Friction Velocity

Tyler Sieve No.	ASTM 11 Sieve No.	Opening (mm)	TFV (cm/s)
5	5	4	135
9	10	2	100
16	18	1	76
32	35	0.5	58
60	60	0.25	43
Collector Pan	—	—	30

2.4.2 Collect at least three soil samples which represent random portions of the overall conditions of the site, repeat the above TFV test method for each sample and average the resulting TFVs together to determine the TFV uncorrected for non-erodible elements. Non-erodible elements are distinct elements, in the random portion of the overall conditions of the site, that are larger than 1 cm in diameter, remain firmly in place during a wind episode, and inhibit soil loss by consuming part of the shear stress of the wind. Non-erodible elements include stones and bulk surface material but do not include flat or standing vegetation. For surfaces with non-erodible elements, determine corrections to the TFV by identifying the fraction of the survey area, as viewed from directly overhead, that is occupied by non-erodible elements using the following procedure. For a more detailed description of this procedure, see Section 2.7 (Test Methods For Stabilization-Rock Test Method) of this appendix. Select a survey area of 1 meter by 1 meter that represents a random portion of the overall conditions of the site. Where many non-erodible elements lie within the survey area, separate the non-erodible elements into groups according to size. For each group, calculate the overhead area for the non-erodible elements according to the following equations:

(Average Length) x (Average Width) = Average Dimensions. Eq. 1
(Average Dimensions) x (Number Of Elements) = Overhead Area. Eq. 2
Overhead Area Of Group 1 + Overhead Area Of Group 2 (etc.) = Total Overhead Area. Eq. 3
Total Overhead Area/2 = Total Frontal Area. Eq. 4
(Total Frontal Area/Survey Area) x 100 = Percent Cover Of Non-Erodible Elements. Eq. 5

Note: Ensure consistent units of measurement (e.g., square meters or square inches when calculating percent cover).

Repeat this procedure on an additional two distinct survey areas that represent a random portion of the overall conditions of the site and average the results. Use Table 2 of this appendix to identify the correction factor for the percent cover of non-erodible elements. Multiply the TFV by the corresponding correction factor to calculate the TFV corrected for non-erodible elements.

Table 2. Correction Factors For Threshold Friction Velocity

Percent Cover Of Non-Erodible Elements	Correction Factor
Greater than or equal to 10%	5
Greater than or equal to 5% and less than 10%	3

Less than 5% and greater than or equal to 1%	2
Less than 1%	None

2.5 Determination Of Flat Vegetative Cover. Flat vegetation includes attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind. Flat vegetation, which is dead but firmly attached, shall be considered equally protective as live vegetation. Stones or other aggregate larger than 1 centimeter in diameter shall be considered protective cover in the course of conducting the line transect test method. Where flat vegetation exists, conduct the following line transect test method.

2.5.1 Line Transect Test Method. Stretch a 100 foot measuring tape across a survey area that represents a random portion of the overall conditions of the site. Firmly anchor both ends of the measuring tape into the surface using a tool such as a screwdriver, with the tape stretched taut and close to the soil surface. If vegetation exists in regular rows, place the tape diagonally (at approximately a 45° angle) away from a parallel or perpendicular position to the vegetated rows. Pinpoint an area the size of a 3/32 inch diameter brazing rod or wooden dowel centered above each 1 foot interval mark along one edge of the tape. Count the number of times that flat vegetation lies directly underneath the pinpointed area at 1 foot intervals. Consistently observe the underlying surface from a 90° angle directly above each pinpoint on one side of the tape. Do not count the underlying surface as vegetated if any portion of the pinpoint extends beyond the edge of the vegetation underneath in any direction. If clumps of vegetation or vegetative debris lie underneath the pinpointed area, count the surface as vegetated, unless bare soil is visible directly below the pinpointed area. When 100 observations have been made, add together the number of times a surface was counted as vegetated. This total represents the percent of flat vegetation cover (e.g., if 35 positive counts were made, then vegetation cover is 35%). If the survey area that represents a random portion of the overall conditions of the site is too small for 100 observations, make as many observations as possible. Then multiply the count of vegetated surface areas by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 20 times within a total of 50 observations, divide 20 by 50 and multiply by 100 to obtain a flat vegetation cover of 40%.

2.5.2 Conduct the line transect test method, as described in subsection 2.5.1 of this appendix, an additional two times on areas that represent a random portion of the overall conditions of the site and average results.

2.6 Determination Of Standing Vegetative Cover. Standing vegetation includes vegetation that is attached (rooted) with a predominant vertical orientation. Standing vegetation, which is dead but firmly rooted, shall be considered equally protective as live vegetation. Conduct the following standing vegetation test method to determine if 30% cover or more exists. If the resulting percent cover is less than 30% but equal to or greater than 10%, then conduct the test in Section 2.4 (Determination Of Threshold Friction Velocity (TFV)) of this appendix in order to determine if the site is stabilized, such that the standing vegetation cover is equal to or greater than 10%, where threshold friction velocity, corrected for non-erodible elements, is equal to or greater than 43 cm/second.

2.6.1 For standing vegetation that consists of large, separate vegetative structures (e.g., shrubs and sagebrush), select a survey area that represents a random portion of the overall conditions of the site that is the shape of a square with sides equal to at least 10 times the average height of the vegetative structures. For smaller standing vegetation, select a survey area of three feet by three feet.

2.6.2 Count the number of standing vegetative structures within the survey area. Count vegetation, which grows in clumps as a single unit. Where different types of vegetation exist and/or vegetation of different height and width exists, separate the vegetative structures with similar dimensions into groups. Count the number of vegetative structures in each group within the survey area. Select an individual structure within each group that represents the average height and width of the vegetation in the group. If the structure is dense (e.g., when looking at it vertically from base to top there is little or zero open air space within its perimeter), calculate and record its frontal silhouette area, according to Equation 6 of this appendix. Also, use Equation 6 of this appendix to estimate the average height and width of the vegetation if the survey area is larger than nine square feet. Otherwise, use the procedure in subsection 2.6.3 of this appendix to calculate the frontal silhouette area. Then calculate the percent cover of standing vegetation according to Equations 7, 8, and 9 of this appendix.

(Average Height) x (Average Width) = Frontal Silhouette Area. Eq. 6

(Frontal Silhouette Area Of Individual Vegetative Structure) x (Number Of Vegetation Structures Per Group) = Frontal Silhouette Area Of Group. Eq. 7

Frontal Silhouette Area Of Group 1 + Frontal Silhouette Area Of Group 2 (etc.) = Total Frontal Silhouette Area. Eq. 8

(Total Frontal Silhouette Area/Survey Area) x 100 = Percent Cover Of Standing Vegetation. Eq. 9

[(Number Of Circled Gridlines Within The Outlined Area Counted That Are Not Covered By Vegetation/Total Number Of Gridline Intersections Within The Outlined Area) x 100] = Percent Open Space. Eq. 10

100 - Percent Open Space = Percent Vegetative Density. Eq. 11

Percent Vegetative Density/100 = Vegetative Density. Eq. 12

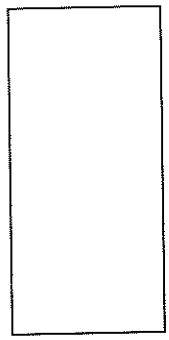
[Max. Height x Max. Width] x [Vegetative Density/0.4]0.5 = Frontal Silhouette Area. Eq.13

Note: Ensure consistent units of measurement (e.g., square meters or square inches when calculating percent cover).

2.6.3 Vegetative Density Factor. Cut a single, representative piece of vegetation (or consolidated vegetative structure) to within 1 cm of surface soil. Using a white paper grid or transparent grid over white paper, lay the vegetation flat on top of the grid (but do not apply pressure to flatten the structure). Grid boxes of 1 inch or 1/2 inch squares are sufficient for most vegetation when conducting this procedure. Using a marker or pencil, outline the shape of the vegetation along its outer perimeter, according to Figure B, C, or D of this appendix, as appropriate. (Note: Figure C differs from Figure D primarily in that the width of vegetation in Figure C is narrow at its base and gradually broadens to its tallest height. In Figure D, the width of the vegetation generally becomes narrower from its midpoint to its tallest height.) Remove the vegetation, count and record the total number of gridline intersections within the outlined area, but do not count gridline intersections that connect with the outlined shape. There must be at least 10 gridline intersections within the outlined area and preferably more than 20, otherwise, use smaller grid boxes. Draw small circles (no greater than a 3/32 inch diameter) at each gridline intersection counted within the outlined area. Replace the vegetation on the grid within its outlined shape. From a distance of approximately 2 feet directly above the grid, observe each circled gridline intersection. Count and record the number of circled gridline intersections that are not covered by any piece of the vegetation. To calculate percent vegetative

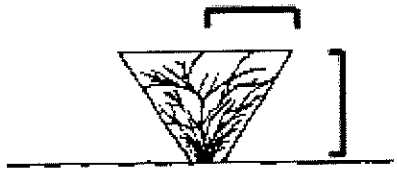
density, use Equations 10 and 11 of this appendix. If percent vegetative density is equal to or greater than 30, use an equation (one of the equations-Equations 16, 17, or 18 of this appendix) that matches the outline used to trace the vegetation (Figure B, C, or D) to calculate its frontal silhouette area. If percent vegetative density is less than 30, use Equations 12 and 13 of this appendix to calculate the frontal silhouette area.

Figure B. Cylinder



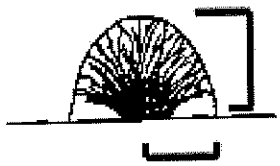
Frontal Silhouette Area = Maximum Height x Maximum Width Eq. 16

Figure C. Inverted Cone



Frontal Silhouette Area = Maximum Height x 1/2 Maximum Width Eq. 17

Figure D. Upper Sphere



Frontal Silhouette Area = (3.14 x Maximum Height x 1/2 Maximum Width)/2 Eq. 18

2.7 Rock Test Method. The Rock Test Method, which is similar to Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) of this appendix, examines the wind-resistance effects of rocks and other non-erodible elements on disturbed surfaces. Non-erodible elements are objects larger than 1 centimeter (cm) in diameter that remain firmly in place even on windy days. Typically, non-erodible elements include rocks, stones, glass fragments, and hardpacked clumps of soil lying on or embedded in the surface. Vegetation does not count as a non-erodible element in this method. The purpose of this test method is to estimate the percent cover of non-erodible elements on a given surface to see whether such elements take up enough space to offer protection against windblown dust. For simplification, the following test method refers to all non-erodible elements as "rocks".

2.7.1 Select a 1 meter by 1 meter survey area that represents the general rock distribution on the surface. (A 1 meter by 1 meter area is slightly greater than a 3 foot by 3 foot area.) Mark-off the survey area by tracing a straight, visible line in the dirt along the edge of a measuring tape or by placing short ropes, yard sticks, or other straight objects in a square around the survey area.

2.7.2 Without moving any of the rocks or other elements, examine the survey area. Since rocks >3/8 inch (1 cm) in diameter are of interest, measure the diameter of some of the smaller rocks to a get a sense for which rocks need to be considered.

2.7.3 Mentally group the rocks >3/8 inch (1 cm) diameter lying in the survey area into small, medium, and large size categories. Or, if the rocks are all approximately the same size, simply select a rock of average size and typical shape. Without removing any of the rocks from the ground, count the number of rocks in the survey area in each group and write down the resulting number.

2.7.4 Without removing rocks, select one or two average-size rocks in each group and measure the length and width. Use either metric units or standard units. Using a calculator, multiply the length times the width of the rocks to get the average dimensions of the rocks in each group. Write down the results for each rock group.

2.7.5 For each rock group, multiply the average dimensions (length times width) by the number of rocks counted in the group. Add the results from each rock group to get the total rock area within the survey area.

2.7.6 Divide the total rock area, calculated in subsection 2.7.5 of this appendix, by two (to get frontal area). Divide the resulting number by the size of the survey area (make sure the units of measurement match), and multiply by 100 for percent rock cover. For example, the total rock area is 1,400 square centimeters, divide 1,400 by 2 to get 700. Divide 700 by 10,000 (the survey area is 1 meter by 1 meter, which is 100 centimeters by 100 centimeters or 10,000 centimeters) and multiply by 100. The result is 7% rock cover. If rock measurements are made in inches, convert the survey area from meters to inches (1 inch = 2.54 centimeters).

2.7.7 Select and mark-off two additional survey areas and repeat the procedures described in subsection 2.7.1 through subsection 2.7.6 of this appendix. Make sure the additional survey areas also represent the general rock distribution on the site. Average the percent cover results from all three survey areas to estimate the average percent of rock cover.

2.7.8 If the average rock cover is greater than or equal to 10%, the surface is stable. If the average rock cover is less than 10%, follow the procedures in subsection 2.7.9 of this appendix.

2.7.9 If the average rock cover is less than 10%, the surface may or may not be stable. Follow the procedures in Section 2.4 (Determination Of

Threshold Friction Velocity (TFV)) of this rule and use the results from the rock test method as a correction (i.e., multiplication) factor. If the rock cover is at least 1%, such rock cover helps to limit windblown dust. However, depending on the soil's ability to release fine dust particles into the air, the percent rock cover may or may not be sufficient enough to stabilize the surface. It is also possible that the soil itself has a high enough TFV to be stable without even accounting for rock cover.

2.7.10 After completing the procedures described in subsection 2.7.9 of this appendix, use Table 2 of this appendix to identify the appropriate correction factor to the TFV, depending on the percent rock cover. Multiply the correction factor by the TFV value for a final TFV estimate that is corrected for non-erodible elements.

3. TIME AVERAGED METHODS OF Visual OPACITY Determination of Emissions From DUST GENERATING OPERATIONS

3.1 Applicability. This method is applicable for the determination of opacity of fugitive dust plumes from dust generating operations. A time-averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

3.2 Principle. The opacity of emissions from sources of visible emissions is determined visually by an observer qualified according to the procedures of Section 3.4 of this appendix.

3.3 Procedures. An observer qualified, in accordance with Section 3.4 of this appendix, shall use the following procedures for visually determining the opacity of emissions.

3.3.1 Procedures For Emissions From Stationary Sources. These procedures are not applicable to this section.

3.3.2 To determine the opacity of non-continuous dust plumes caused by activities including, but not limited to, bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes:

a. Position. Stand at least 25 feet from the dust generating operation in order to provide a clear view of the emissions with the sun oriented in the 140°. sector to the back. Choose a discrete portion of the operation for observation, such as the unloading point, not the whole operation. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Initial Fallout Zone. The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

c. Field Records. Note the following on an observational record sheet:

1. Location of dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation;

3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and

4. Color of the plume and type of background.

d. Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make two observations per discrete activity, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

e. Recording Observations. Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. Repeat observations until you have recorded at least a total of 12 consecutive opacity readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed one hour. Observations immediately preceding and following interrupted observations can be considered consecutive (e.g., vehicle traveled in front of path, plume doubled-over).

f. Data Reduction. Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules.

3.3.3 To determine the opacity of continuous dust plumes caused by equipment and activities including but not limited to graders, trenchers, paddlewheels, blades, clearing, leveling, and raking

a. Position. Stand at least 25 feet from the dust generating operation to provide a clear view of the emissions with the sun oriented in the 140° sector to your back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction.

b. Dust Plume. Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes.

1. If a single piece of equipment is observed working, then all measurements should be taken off the resultant plume as long as the equipment remains within the 140° sector to the back.

2. If there are multiple related sources or multiple related points of emissions of dust from a particular activity, or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140° sector to the back. Readings can be taken for more than one piece of equipment within the discrete length of travel path within the 140° sector to the back.

c. Initial Fallout Zone. The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained

fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

d. Field Records. Note the following on an observational record sheet:
   1. Location of the dust generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;
   2. Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust generating operation, and observer's estimated distance and direction to the location of the dust generating operation; and
   3. Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds).

e. Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations at a point beyond the fallout zone. The observations should be made at the densest point. Observations will be made every 10 seconds until at least 12 readings have been recorded. Do not look continuously at the plume, but observe the plume momentarily at 10-second intervals. If the equipment generating the plume travels outside the field of observation or if the equipment ceases to operate, mark an "x" for the 10-second reading interval. Mark an "x" when plumes are stacked or doubled, either behind or in front, or become parallel to line of sight. Opacity readings identified as "x" shall be considered interrupted readings.

f. Recording Observations. Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 10-second period.

g. Data Reduction. Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust generating operation is in compliance with the opacity standard described in Rule 310 of these rules.

3.4 Qualification and Testing.

3.4.1 Certification Requirements. To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5% increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15% opacity on any one reading and an average error not to exceed 7.5% opacity in each category. Candidates shall be tested according to the procedures described in subsection 3.4.2 of this appendix. Any smoke generator used pursuant to subsection 3.4.2 of this appendix shall be equipped with a smoke meter, which meets the requirements of subsection 3.4.3 of this appendix. Certification tests that do not meet the requirements of subsections 3.4.2 and 3.4.3 of this appendix are not valid. The certification shall be valid for a period of 6 months, and after each 6-month period the qualification procedures must be repeated by an observer in order to retain certification.

3.4.2 Certification Procedure. The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The

candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator, during which candidates are shown black and white plumes of known opacity.

3.4.3 Smoke Generator Specifications. Any smoke generator used for the purpose of subsection 3.4.2 of this appendix shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0% to 100% chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table A of this appendix. The smoke meter shall be calibrated as prescribed in subsection 3.4.3(a) of this appendix prior to conducting each smoke reading test. At the completion of each test, the zero and span drift shall be checked, and if the drift exceeds plus or minus 1% opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter shall be demonstrated, at the time of installation, to meet the specifications listed in Table A of this appendix. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry, including the chart recorder or output meter, or every 6 months, whichever occurs first.

a. Calibration. The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0% and 100%. When stable response at 0% or 100% is noted, the smoke meter is adjusted to produce an output of 0% or 100%, as appropriate. This calibration shall be repeated until stable 0% and 100% readings are produced without adjustment. Simulated 0% and 100% opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

b. Smoke Meter Evaluation. The smoke meter design and performance are to be evaluated as follows:

(1) Light Source. Verify, from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within plus or minus 5% of the nominal rated voltage.

(2) Spectral Response Of Photocell. Verify from manufacturer's data that the photocell has a photopic response (i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table A of this appendix).

(3) Angle Of View. Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15°. Calculate the total angle of view as follows:

Total Angle Of View = 2tan-1 d/2L

Where:

d = The photocell diameter + the diameter of the limiting aperture; and

L = The distance from the photocell to the limiting aperture.
The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters, this is normally an orifice plate.

(4) Angle Of Projection. Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15°. Calculate the total angle of projection as follows:
Total Angle Of Projection = 2tan-1 d/2L
Where:
d = The sum of the length of the lamp filament + the diameter of the limiting aperture; and
L = The distance from the lamp to the limiting aperture.

(5) Calibration Error. Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter, according to subsection 3.4.3(a) of this appendix, and then inserting a series of three neutral-density filters of nominal opacity of 20%, 50%, and 75% in the smoke meter path length. Use filters calibrated within plus or minus 2%. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum opacity error on any one reading shall be plus or minus 3%.

(6) Zero And Span Drift. Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

(7) Response Time. Determine the response time by producing the series of five simulated 0% and 100% opacity values and observing the time required to reach stable response. Opacity values of 0% and 100% may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

Table A. Smoke Meter Design And Performance Specifications

Parameter	Specification
a. Light Source	Incandescent lamp operated at nominal rated voltage.
b. Spectral response of photocell	Photopic (daylight spectral response of the human eye).
c. Angle of view	15° maximum total angle.
d. Angle of projection	15° maximum total angle.
e. Calibration error	Plus or minus 3% opacity, maximum.
f. Zero and span drift	Plus or minus 1% opacity, 30 minutes.
g. Response time	Less than or equal to 5 seconds.

Adopted 04/07/04

APPENDIX F
SOIL DESIGNATIONS

INDEX

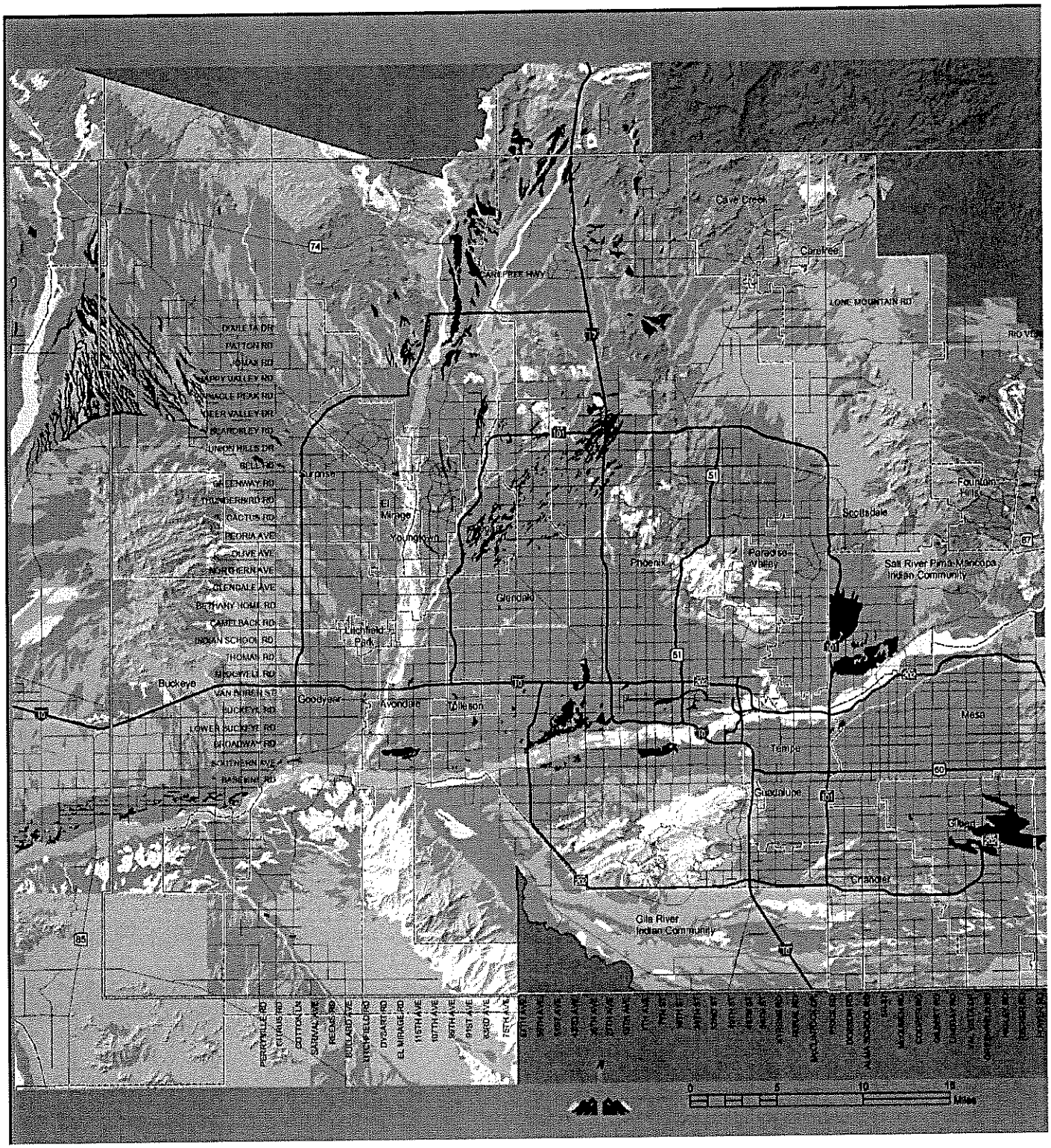
MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX F
SOIL DESIGNATIONS

1. SOIL DESCRIPTIONS

   a. VERY SLIGHT SOIL TEXTURE – includes very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand.
   b. SLIGHT SOIL TEXTURE – includes very fine sandy loam, fine sandy loam, sandy loam, course sandy loam.
   c. MODERATE SOIL TEXTURE – includes loam, silt loam, clay loam, silty clay loam, sandy clay loam.
   d. SEVERE SOIL TEXTURE – includes clay, silty clay, sandy clay.

2. SOIL MAP


Cave Creek
Carefree
LONE MOUNTAIN RD
DUNLAP AVE
PATTON RD
OLIVE AVE
NORTHERN AVE
GLENDALE AVE
BETHANY HOME RD
CAMELBACK RD
INDIAN SCHOOL RD
THOMAS RD
MCDOWELL RD
VAN BUREN ST
BUCKEYE RD
LOWER BUCKEYE RD
BROADWAY RD
SOUTHERN AVE
BASELINE RD
Tempe
El Mirage
Youngtown
Glendale
Litchfield Park
Buckeye
Goodyear
Avondale
Phoenix
Paradise Valley
Scottsdale
Fountain Hills
Salt River Pima-Maricopa Indian Community
Mesa
Gilbert
Chandler
Gila River Indian Community
0
5
10
15
Miles

Revision to

Maricopa County Rule 310.01

Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots and Unpaved Roadways

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310.01
FUGITIVE DUST FROM
OPEN AREAS, VACANT LOTS, UNPAVED PARKING LOTS, AND UNPAVED ROADWAYS

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Adopted 06/16/99
Revised 02/16/00
Revised 02/17/05

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 310.01
FUGITIVE DUST FROM
OPEN AREAS, VACANT LOTS, UNPAVED PARKING LOTS, AND UNPAVED ROADWAYS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of particulate matter into the ambient air from open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not regulated by Rule 310 (Fugitive Dust) of these rules and which do not require a permit nor a Dust Control Plan. The effect of this rule shall be to minimize the amount of fine particulate matter (PM_{10}) entrained into the ambient air as a result of the impact of human activities by requiring measures to prevent, reduce, or mitigate particulate matter emissions.

102 APPLICABILITY: The provisions of this rule shall apply to open areas, vacant lots, unpaved parking lots, and unpaved roadways which are not regulated by Rule 310 (Fugitive Dust) of these rules and which do not require a permit nor a Dust Control Plan. In addition, the provisions of this rule shall apply to any open area or vacant lot that is not defined as agricultural land and is not used for agricultural purposes according to Arizona Revised Statutes (ARS) §42-12151 and ARS §42-12152. The provisions of this rule shall not apply to normal farm cultural practices according to ARS §49-457 and ARS §49-504.4.

SECTION 200 - DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 BULK MATERIAL - Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than 2 inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that are capable of producing fugitive dust.

202 CHEMICAL/ORGANIC STABILIZER - Any non-toxic chemical or organic dust suppressant, other than water, which meets any specifications, criteria, or tests required by any Federal, State, or local water agency and is not prohibited for use by any applicable law, rule, or regulation.

203 CONTROL MEASURE - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

204 DISTURBED SURFACE AREA - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust. For the purpose of this rule, an area is considered to be a disturbed surface area until the activity that caused the disturbance has been completed and the disturbed surface area meets the standards described in Section 300 of this rule, as applicable.

205 DUST SUPPRESSANT - Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

206 FEEDLOTS AND/OR LIVESTOCK AREAS - Any area on which an operation directly related to feeding animals, displaying animals, racing animals, exercising animals, and/or for any other such activity exists.

207 FUGITIVE DUST - The particulate matter not collected by a capture system, that is entrained in the ambient air and is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

208 MOTOR VEHICLE - A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

209 NORMAL FARM CULTURAL PRACTICE - All activities by the owner, lessee, agent, independent contractor, and/or supplier conducted on any facility for the production of crops and/or nursery plants. Disturbances of the field surface caused by turning under stalks, tilling, leveling, planting, fertilizing, or harvesting are included in this definition.

210 OFF-ROAD VEHICLE - Any self-propelled conveyance specifically designed for off-road use, including, but not limited to, off-road or all-terrain equipment, trucks, cars, motorcycles, motorbikes, or motorbuggies.

211 OPEN AREAS AND VACANT LOTS - Any of the following described in Section 211.1 through Section 211.4 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one vacant open area or vacant lot.

211.1 An unsubdivided or undeveloped tract of land adjoining a developed or a partially developed residential, industrial, institutional, governmental, or commercial area.

211.2 A subdivided residential, industrial, institutional, governmental, or commercial lot that contains no approved or permitted buildings or structures of a temporary or permanent nature.

211.3 A partially developed residential, industrial, institutional, governmental, or commercial lot.

211.4 A tract of land, in the PM_{10} nonattainment area, adjoining agricultural property.

212 OWNER AND/OR OPERATOR - Any person who owns, leases, operates, controls, or supervises a fugitive dust source subject to the requirements of this rule.

213 PAVE - To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt).

214 PM_{10} NONATTAINMENT AREA - An area designated by the EPA as exceeding national ambient air quality standards based upon data collected thru air quality monitoring. The geographical boundary of Maricopa County's PM_{10} nonattainment area is defined as the rectangle determined by and including the following townships and ranges: T6N, R3W; T6N, R7E; T2S, R3W; T2S, R7E; and T1N, R8E. Maricopa County's PM_{10} nonattainment area includes the following cities: Surprise, Peoria, Glendale, Phoenix, Scottsdale, Tempe, Mesa, Gilbert, Chandler, Avondale, Buckeye, and Goodyear.

215 PUBLIC ROADWAYS - Any roadways that are open to public travel.

216 UNPAVED PARKING LOT - Any area larger than 5,000 square feet that is not paved and that is used for parking, maneuvering, or storing motor vehicles.

217 UNPAVED ROADWAY (INCLUDING ALLEYS) - A road that is not paved and that is owned by Federal, State, county, municipal, or other governmental or quasi-governmental agencies. For the purpose of this rule, an unpaved roadway (including alleys) is not a horse trail, hiking path, bicycle path, or other similar path used exclusively for purposes other than travel by motor vehicles.

218 VACANT LOT - The definition of vacant lot is included in Section 211 (Definition Of Open Areas And Vacant Lots) of this rule.

SECTION 300 - STANDARDS

301 VEHICLE USE IN OPEN AREAS AND VACANT LOTS: If open areas and vacant lots are 0.10 acre or larger and have a cumulative of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, then the owner and/or operator of such open areas and vacant lots shall implement one of the control measures described in Section 301.1 of this rule within 60 calendar days following the initial discovery of vehicle use on open areas and vacant lots. Within 30 calendar days following the initial discovery by the Control Officer of vehicle use on open areas and vacant lots, the owner and/or operator of such open areas and vacant lots shall provide in writing to the Control Officer a description and date of the control measure(s) to be implemented to prevent such vehicle use on open areas and vacant lots. For the purpose of this rule, such control measure(s) shall be considered effectively implemented when the open areas and vacant lots meet one of the stabilization limitations described in Section 301.2 of this rule. Once a control measure in Section 301.1 of this rule has been effectively implemented, then such open area or vacant lot is subject to the requirements of Section 302 (Open Areas And Vacant Lots) of this rule. Use of or parking on open areas and vacant lots by the owner and/or operator of such open areas and vacant lots and/or landscape maintenance of such open areas and vacant lots shall not be considered vehicle use in open areas and vacant lots, although such open areas and vacant lots shall still meet the stabilization limitations described in Section 301.2 of this rule. For the purpose of this rule, landscape maintenance does not include grading, trenching, nor any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

301.1 Control Measures:

a. Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access, by installing barriers, curbs, fences, gates, posts, signs (written in English and Spanish and in compliance with ordinance(s) of local jurisdictions), shrubs, trees, or other effective control measures.

b. Uniformly apply and maintain surface gravel or chemical/organic stabilizers to all areas disturbed by motor vehicles and/or off-road vehicles in compliance with one of the stabilization limitations described in Section 301.2 of this rule.

c. Apply and maintain an alternative control measure approved in writing by the Control Officer and the Administrator of the EPA.

301.2 Stabilization Limitations:

a. A visible crust shall be implemented, as determined by Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules; or

b. A threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher shall be implemented, as determined by Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules; or

c. Flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50% shall be implemented, as determined by Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules; or

d. Standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30% shall be implemented, as determined by Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules; or

e. Standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements shall be implemented, as determined by Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules; or

f. A percent cover that is equal to or greater than 10% for non-erodible elements shall be implemented, as determined by Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules; or

g. An alternative test method approved in writing by the Control Officer and the Administrator of the EPA shall be implemented.

302 OPEN AREAS AND VACANT LOTS: If open areas and vacant lots have 0.5 acre or more of disturbed surface area and remain unoccupied, unused, vacant, or undeveloped for more than 15 days, then the owner and/or operator of such open areas and vacant lots shall implement one of the control measures described in Section 302.1 of this rule within 60 calendar days following the initial discovery of the disturbance on the open areas and vacant lots. Within 30 calendar days following the initial discovery by the Control Officer of the

disturbance on the open areas and vacant lots, the owner and/or operator of such open areas and vacant lots shall provide in writing to the Control Officer a description and date of the control measure(s) to be implemented. For the purpose of this rule, such control measure(s) shall be considered effectively implemented when the open areas and vacant lots meet one of the stabilization limitations described in Section 302.2 of this rule. Should an open area or vacant lot on which no activity is occurring contain more than one type of disturbance, soil, vegetation, or other characteristics that are visibly distinguishable, then each representative surface shall be tested separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Appendix C of these rules and included or eliminated from the total size assessment of disturbed surface area(s) depending on test method results.

302.1 Control Measures:

a. Establish vegetative ground cover on all disturbed surface areas within 60 calendar days following the initial discovery of the disturbance. Such control measure(s) must be maintained and reapplied, if necessary, until the disturbed surface areas are stabilized, in compliance with one of the stabilization limitations described in Section 302.2 of this rule. Stabilization shall be achieved, per this control measure, within eight months after the control measure has been implemented.

b. Apply a dust suppressant to all disturbed surface areas, in compliance with one of the stabilization limitations described in Section 302.2 of this rule.

c. Restore all disturbed surface areas within 60 calendar days following the initial discovery of the disturbance, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions. Such control measure(s) must be maintained and reapplied, if necessary, until the disturbed surface areas are stabilized, in compliance with one of the stabilization limitations described in Section 302.2 of this rule. Stabilization shall be achieved, per such control measure, within eight months after such control measure has been implemented.

d. Uniformly apply and maintain surface gravel, in compliance with one of the stabilization limitations described in Section 302.2 of this rule.

e. Apply and maintain an alternative control measure approved in writing by the Control Officer and the Administrator of the EPA.

302.2 Stabilization Limitations:

a. A visible crust shall be implemented, as determined by Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules; or

b. A threshold friction velocity (TFV), corrected for non-erodible elements of 100 cm/second or higher, shall be implemented, as determined by Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules; or

c. Flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50% shall be implemented, as determined by Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules; or

d. Standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30% shall be implemented, as determined by Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules; or

e. Standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements shall be implemented, as determined by Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules; or

f. A percent cover that is equal to or greater than 10% for non-erodible elements shall be implemented, as determined by Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules; or

g. An alternative test method approved in writing by the Control Officer and the Administrator of the EPA shall be implemented.

303 UNPAVED PARKING LOTS: The owner and/or operator of an unpaved parking lot shall implement one of the control measures described in Section 303.1 of this rule on any surface area(s) of the lot on which vehicles enter, park, and exit. For unpaved parking lots that are utilized intermittently, for a period of 35 days or less during the calendar year, the owner and/or operator shall implement one of the control measures described in Section 303.1 of this rule, during the period that the unpaved parking lots are utilized for vehicle parking. For the purpose of

this rule, such control measure(s) shall be considered effectively implemented when the unpaved parking lot meets the stabilization and opacity limitations described in Section 303.2 of this rule.

303.1 Control Measures:

a. Pave.

b. Apply dust suppressants, in compliance with the stabilization and opacity limitations described in Section 303.2 of this rule.

c. Uniformly apply and maintain surface gravel, in compliance with the stabilization and opacity limitations described in Section 303.2 of this rule.

303.2 Stabilization And Opacity Limitations: For the purpose of this rule, control measures shall be considered effectively implemented when stabilization and opacity observations for fugitive dust emissions from unpaved parking lots do not exceed 20% opacity and meet one of the following, as determined by Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules:

a. Silt loading is equal to or greater than 0.33 oz/ft^2; or

b. Silt content does not exceed 8%.

304 UNPAVED ROADWAYS (INCLUDING ALLEYS): If a person allows 150 vehicles or more per day to use an unpaved roadway (including alleys) in the PM_{10} nonattainment area, then such person shall first implement one of the control measures described in Section 304.1 of this rule. For the purpose of this rule, such control measure(s) shall be considered effectively implemented when the unpaved roadway (including alleys) meets the stabilization and opacity limitation described in Section 304.2 of this rule.

304.1 Control Measures:

a. Pave.

b. Apply dust suppressants, in compliance with the stabilization and opacity limitations described in Section 304.2 of this rule.

c. Uniformly apply and maintain surface gravel, in compliance with the stabilization and opacity limitations described in Section 304.2 of this rule.

304.2 Stabilization And Opacity Limitations: For the purpose of this rule, control measures shall be considered effectively implemented when

stabilization and opacity observations for fugitive dust emissions from unpaved roadways (including alleys) do not exceed 20% opacity and meet one of the following, as determined by Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules:

a. Silt loading is equal to or greater than 0.33 oz/ft^2; or

b. Silt content does not exceed 6%.

305 FEEDLOTS AND/OR LIVESTOCK AREAS: The owner and/or operator of any feedlot and/or livestock area shall implement one of the control measures described in Section 305.1 of this rule. For the purpose of this rule, such control measure(s) shall be considered effectively implemented when the feedlot and/or livestock area meets the opacity limitation described in Section 305.2 of this rule.

305.1 Control Measures:

a. Apply dust suppressants, in compliance with the opacity limitation described in Section 305.2 of this rule.

b. Uniformly apply and maintain surface gravel, in compliance with the opacity limitation described in Section 305.2 of this rule.

c. Install shrubs and/or trees within 50 feet to 100 feet of animal pens, in compliance with the opacity limitation described in Section 305.2 of this rule.

305.2 Opacity Limitation: For the purpose of this rule, control measures shall be considered effectively implemented when opacity observations for fugitive dust emissions from feedlots and/or livestock areas do not exceed 20% opacity, as determined by Appendix C, Section 3 (Visual Determination Of Opacity Of Emissions From Sources For Time-Average Regulations) of these rules.

306 EROSION-CAUSED DEPOSITION OF BULK MATERIALS ONTO PAVED SURFACES: In the event that erosion-caused deposition of bulk materials or other materials occurs on any adjacent paved roadway or paved parking lot, the owner and/or operator of the property from which the deposition eroded shall implement both of the control measures described in Section 306.1 of this rule. For the purpose of this rule, such control measures shall be considered effectively implemented when the deposition meets the opacity limitation described in Section 306.2 of this rule. Exceedances of the opacity limitation, due to erosion-caused deposition of bulk materials onto paved surfaces, shall constitute a violation of the opacity limitation.

306.1 Control Measures:

a. Remove any and all such deposits by utilizing the appropriate control measures within 24 hours of the deposits' identification or prior to the resumption of traffic on pavement, where the pavement area has been closed to traffic; and

b. Dispose of deposits in such a manner so as not to cause another source of fugitive dust.

306.2 Opacity Limitation: For the purpose of this rule, control measures shall be considered effectively implemented when opacity observations for fugitive dust emissions from erosion-caused deposition of bulk materials onto paved surfaces do not exceed 20% opacity, as described in Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules.

307 EASEMENTS, RIGHTS-OF-WAY, AND ACCESS ROADS FOR UTILITIES (ELECTRICITY, NATURAL GAS, OIL, WATER, AND GAS TRANSMISSION): If an owner and/or operator allows 150 vehicles or more per day to use an easement, right-of-way, and access road for utilities (electricity, natural gas, oil, water, and gas transmission) in the PM_{10} nonattainment area, then such owner and/or operator shall first implement one of the control measures described in Section 307.1 of this rule. For the purpose of this rule, such control measure(s) shall be considered effectively implemented, when the easement, right-of-way, and access road for utilities (electricity, natural gas, oil, water, and gas transmission) meet the stabilization and opacity limitation described in Section 307.2 of this rule.

307.1 Control Measures:

a. Pave.

b. Apply dust suppressants, in compliance with the stabilization and opacity limitations described in Section 307.2 of this rule.

c. Uniformly apply and maintain surface gravel, in compliance with the stabilization and opacity limitations described in Section 307.2 of this rule.

307.2 Stabilization And Opacity Limitations: For the purpose of this rule, control measures shall be considered effectively implemented when stabilization and opacity observations for fugitive dust emissions from easements, rights-of-way, and access roads for utilities (electricity, natural gas, oil, water, and gas transmission) do not exceed 20% opacity and meet one of the following, as determined by Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules:

a. Silt loading is not equal to or greater than 0.33 oz/ft^2; or

b. Silt content does not exceed 6%.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

SECTION 500 - MONITORING AND RECORDS

501 STABILIZATION OBSERVATIONS:

501.1 Stabilization observations for unpaved parking lots and/or unpaved roadways (including alleys) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods For Stabilization-For Unpaved Roads And Unpaved Parking Lots) of these rules.

501.2 Stabilization observations for an open area and vacant lot shall be conducted in accordance with the following:

a. Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules; or

b. Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules, where the threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements is 100 cm/second or higher; or

c. Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules, where flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) is equal to at least 50%; or

d. Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules, where standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) is equal to or greater than 30%; or

e. Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules, where the standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) is equal to or greater than 10% and where the threshold friction velocity, corrected for non-erodible elements, is equal to or greater than 43 cm/second; or

f. Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules where a percent cover is equal to or greater than 10% for non-erodible elements.

g. An alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

502 RECORDKEEPING: Any person subject to the requirements of this rule shall compile and retain records that provide evidence of control measure application (i.e., receipts and/or purchase records). Such person shall describe, in the records, the type of treatment or control measure, extent of coverage, and date applied. Upon verbal or written request by the Control Officer, such person shall provide the records and supporting documentation within 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, such person shall provide the records without delay.

503 RECORDS RETENTION: Copies of the records required by Section 502 (Recordkeeping) of this rule shall be retained for at least one year.

Revision to

Maricopa County Rule 316

Nonmetallic Mineral and Processing

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 316

NONMETALLIC MINERAL PROCESSING

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 316
NONMETALLIC MINERAL PROCESSING

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of particulate matter into the ambient air from any nonmetallic mineral processing plant and/or rock product processing plant.

102 APPLICABILITY: The provisions of this rule shall apply to any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable New Source Performance Standards. In such case, the more stringent standard shall apply.

SECTION 200 - DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 AFFECTED OPERATION - An operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping.

202 AGGREGATE TRUCK – Any truck with an open top used to transport the products of nonmetallic mineral processing plants and/or rock product processing plants.

203 APPROVED EMISSION CONTROL SYSTEM - A system for reducing particulate emissions, consisting of collection and/or control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

204 AREA ACCESSIBLE TO THE PUBLIC - Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.

205 ASPHALTIC CONCRETE PLANT/ASPHALT PLANT - Any facility used to manufacture asphaltic concrete by mixing graded aggregate and asphaltic cements.

206 BAGGING OPERATION - The mechanical process by which bags are filled with nonmetallic minerals.

207 BATCH TRUCK – Any truck that loads and transports products produced by batch.

208 BELT CONVEYOR - A conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

209 BERMS AND GUARD RAILS - A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.

210 BULK MATERIAL - Any material including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than two inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that is capable of producing fugitive dust.

211 COHESIVE HARD SURFACE – Any material including, but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.

212 CONCRETE PLANT - Any facility used to manufacture concrete by mixing water, aggregate, and cement.

213 CONVEYING SYSTEM - A device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include, but are not limited to, feeders, belt conveyers, bucket elevators and pressure control systems.

214 CRUSHER - A machine used to crush any nonmetallic minerals including, but not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

215 DISTURBED SURFACE AREA - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.

216 DRY MIX CONCRETE PLANT - Any facility used to manufacture a mixture of aggregate and cements without the addition of water.

217 DUST GENERATING OPERATION - Any activity capable of generating fugitive dust including, but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule,

landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

218 DUST SUPPRESSANT - Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

219 ENCLOSED TRUCK OR RAILCAR LOADING STATION - That portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

220 END OF WORK DAY – The end of a working period that may include one or more work shifts but not later than 8 pm.

221 FABRIC FILTER BAGHOUSE - Tube-shaped filter bags - long small-diameter fabric tubes referred to as 'bags' arranged in parallel flow paths and designed to separate particles and flue gas.

222 FREEBOARD - The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

223 FUGITIVE DUST CONTROL MEASURE - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

224 FUGITIVE DUST CONTROL TECHNICIAN - A person with the authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.

225 FUGITIVE DUST EMISSION - Particulate matter not collected by a capture system that is entrained in the ambient air and is caused from human and/or natural activities.

226 GRINDING MILL - A machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

227 HAUL/ACCESS ROAD – Any on-site unpaved road that is used by haul trucks to carry materials from the quarry to different locations within the facility.

228 **HAUL TRUCK** - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

229 **INFREQUENT OPERATIONS** – Operations that have State mine identification, approved reclamation plans and bonding as required by State Mining And Reclamation Act of 1975, and only operate on an average of 52 days per year over the past three years from (the adoption date of this rule).

230 **MATERIAL DELIVERY TRUCK** – Any truck that loads and transports product to customers.

231 **MIXER TRUCK** – Any truck that mixes cement and other ingredients in a drum to produce concrete.

232 **MOTOR VEHICLE** - A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

233 **NEW FACILITY** - A facility subject to this rule that has not been operated by such facility prior to June 8, 2005.

234 **NONMETALLIC MINERAL -** Any of the following minerals or any mixture of which the majority is any of the following minerals:

234.1 Crushed and broken stone, including limestone, dolomite, granite, rhyolite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.
234.2 Sand and gravel.
234.3 Clay including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.
234.4 Rock salt.
234.5 Gypsum.
234.6 Sodium compounds including sodium carbonate, sodium chloride, and sodium sulfate.
234.7 Pumice.
234.8 Gilsonite.
234.9 Talc and pyrophyllite.
234.10 Boron including borax, kernite, and colemanite.
234.11 Barite.
234.12 Fluorspar.
234.13 Feldspar.
234.14 Diatomite.
234.15 Perlite.
234.16 Vermiculite.

234.17 Mica.
234.18 Kyanite including andalusite, sillimanite, topaz, and dumortierite.
234.19 Coal.

235 NONMETALLIC MINERAL PROCESSING PLANT - Any facility utilizing any combination of equipment or machinery that is used to mine, excavate, separate, combine, crush, or grind any nonmetallic mineral including, but not limited to, lime plants, coal fired power plants, steel mills, asphalt plants, concrete plants, Portland cement plants, and sand and gravel plants. Rock Product Processing Plants are included in this definition.

236 OPEN STORAGE PILE - Any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-01 or other equivalent method approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA), that the silt content is less than 5%. For the purpose of this rule, the definition of open storage pile does not include berms and guard rails that are installed to comply with 30 Code Of Federal Regulations (CFR) 56.93000.

237 OVERBURDEN OPERATION – An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.

238 PARTICULATE MATTER EMISSIONS - Any and all finely divided solid or liquid materials other than uncombined water released to the ambient air as measured by the applicable state and federal test methods.

239 PAVE - To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, rubberized asphalt, or recycled asphalt mixed with a binder).

240 PORTLAND CEMENT PLANT - Any facility that manufactures Portland Cement using either a wet or dry process.

241 PRESSURE CONTROL SYSTEM - System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.

242 PROCESS - One or more operations including those using equipment and technology in the production of goods or services or the control of by-products or waste.

243 PROCESS SOURCE - The last operation of a process or a distinctly separate process which produces an air contaminant and which is not a pollution abatement operation.

244 **PRODUCTION WORK SHIFT –** An eight hour operating period based on the 24-hour operating schedule.

245 **PUBLIC ROADWAYS** - Any roadways that are open to public travel.

246 **RETURNED PRODUCTS** – Left-over concrete or asphalt products that were not used at a job site and were returned to the facility.

247 **RUMBLE GRATE** – A system where the vehicle is vibrated while traveling over grates with the purpose of removing dust and other debris.

248 **SCREENING OPERATION -** A device that separates material according to its size by passing undersize material through one or more mesh surfaces (screens) in series and retaining oversize material on the mesh surfaces (screens).

249 **SILO -** An elevated storage container with or without a top that releases material thru the bottom.

250 **SILT** - Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.

251 **SPILLAGE** - Any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions.

252 **STACK EMISSIONS -** The particulate matter emissions that are released to the atmosphere from a capture system through a building vent, stack or other point source discharge.

253 **STAGING AREA** – A place where aggregate trucks and mixer trucks temporarily queue for their loading or unloading.

254 **TEMPORARY FACILITY** - A facility that occupies a designated site for not more than 180 days in a calendar year.

255 **TRACKOUT** - Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

256 **TRACKOUT CONTROL DEVICE -** A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.

257 TRANSFER POINT - A point in a conveying operation where nonmetallic mineral is transferred from or to a belt conveyor except for transfer to a stockpile.

258 TRUCK DUMPING - The unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to, trucks, front end loaders, skip hoists, and railcars.

259 TRUCK WASHER – A system that is used to wash the entire surface and the tires of a truck.

260 UNPAVED ROAD – Any roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal, or governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public. Unpaved internal roads are private unpaved roads within the facility's property boundary.

261 VENT - An opening through which there is mechanically or naturally induced air flow for the purpose of exhausting air carrying particulate matter.

262 WHEEL WASHER – A system that is capable of washing the entire circumference of each wheel of the vehicle.

263 WIND EVENT - When the 60-minute average wind speed is greater than 25 miles per hour.

SECTION 300 - STANDARDS

301 NONMETALLIC MINERAL PROCESSING PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:

301.1 Process Emission Limitations: The owner and/or operator of a nonmetallic mineral processing plant shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity and containing more than 0.02 grains/dry standard cubic foot (gr/dscf) (50 mg/dscm) of particulate matter. Such stack emissions shall be vented to a properly sized fabric filter baghouse.

b. Fugitive dust emissions exceeding 7% opacity from any transfer point on a conveying system.

c. Fugitive dust emissions exceeding 15% opacity from any crusher.

d. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.

e. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

301.2 Controls: For crushing and screening facilities, the owner and/or operator of a nonmetallic mineral processing plant shall implement all of the following process controls:

a. Enclose sides of all shaker screens.

b. Permanently mount watering systems (e.g., spray bars or an equivalent control) on:

(1) Inlet and outlet of all crushers;

(2) Outlet of all shaker screens; and

(3) Outlet of all material transfer points, excluding wet plants.

302 ASPHALTIC CONCRETE PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:

302.1 Process Emission Limitations: The owner and/or operator of an asphaltic concrete plant shall not discharge or cause or allow to be discharged into the ambient air:

a. For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.

b. For rubberized asphaltic concrete plants (when producing rubberized asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.

c. From all cement, lime, and/or fly-ash storage silo(s), fugitive dust emissions exceeding 20% opacity.

302.2 Controls: The owner and/or operator of an asphaltic concrete plant shall implement all of the following process controls:

a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a

capacity that could adversely impact pollution abatement equipment.

b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

c. On new cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf, with an opacity limit of not greater than 5% over a 6-minute period.

d. From all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

303 CONCRETE PLANTS AND/OR BAGGING OPERATIONS - PROCESS EMISSION LIMITATIONS AND CONTROLS:

303.1 Process Emission Limitations: The owner and/or operator of a concrete plant and/or bagging operation shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity.

b. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.

c. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

303.2 Controls: The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process controls:

a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.

b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

c. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf.

d. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls:

(1) Install a rubber fill tube;

(2) Install a water spray;

(3) Install a properly sized fabric filter baghouse or delivery system;

(4) Enclose mixer loading stations such that no visible emissions occur; or

(5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities.

e. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan.

304 OTHER ASSOCIATED OPERATIONS: All other affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules.

305 AIR POLLUTION CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS):

305.1 Operation And Maintenance (O&M) Plan Requirements For ECS:

a. An owner and/or operator of a facility shall provide and maintain, readily available on-site at all times, (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution control permit.

b. The owner and/or operator of a facility shall submit to the Control Officer for approval the O&M Plan(s) for each ECS and for each ECS monitoring device that is used pursuant to this rule.

c. The owner and/or operator of a facility shall comply with all the identified actions and schedules provided in each O&M Plan.

305.2 Providing And Maintaining ECS Monitoring Devices: An owner and/or operator of a facility operating an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in the O&M Plan(s). The monitoring devices shall measure pressures, rates of flow, and/or other operating conditions necessary to determine if the control devices are functioning properly.

305.3 O&M Plan Responsibility: An owner and/or operator of a facility that is required to have an O&M Plan pursuant to Section 305.1 of this rule must fully comply with all O&M Plans that the owner and/or operator has submitted for approval, even if such O&M Plans have not yet been approved, unless notified in writing by the Control Officer.

306 FUGITIVE DUST EMISSION LIMITATIONS:

306.1 20% Opacity Limitation: The owner and/or operator of a facility shall not discharge or cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules.

306.2 Visible Emission Limitation Beyond Property Line: An owner and/or operator of a facility shall not cause or allow fugitive dust emissions from any active operation, open storage pile, or disturbed surface area associated with such facility such that the presence of such fugitive dust emissions remain visible in the atmosphere beyond the property line of such facility.

306.3 Wind Event: The fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule shall not apply during a wind event, if the owner and/or operator of a facility meets the following conditions:

a. Has implemented the fugitive dust control measures described in Section 307 of this rule, as applicable;

b. Has compiled and retained records, in accordance with Section 501.4 of this rule, and has documented by records the occurrence of a wind event on the day(s) in question. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked; and

c. Has implemented the following high wind fugitive dust control measures, as applicable:

(1) For an active operation, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Cease active operation that may contribute to an exceedance of the fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule for the duration of the wind event and, if active operation is ceased for the remainder of the work day, stabilize the area; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(2) For an open storage pile, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(b) Cover open storage pile with tarps, plastic, or other material such that wind will not remove the covering, if open storage pile is less than eight feet high.

(3) For a disturbed surface area, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Uniformly apply and maintain surface gravel or a dust suppressant other than water; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

306.4 Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas: From unpaved internal roads and unpaved parking and staging areas, the owner and/or operator of a facility shall not discharge or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules, and one of the following:

a. Silt loading equal to or greater than 0.33 oz/ft^2; or

b. Silt content exceeding 6%.

306.5 Stabilization Standards:

a. An owner and/or operator of a facility shall be considered in violation of this rule if any open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility is not maintained in a manner that meets at least one of the standards listed below, as applicable.

(1) Maintain a visible crust;

(2) Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;

(3) Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;

(4) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%;

(5) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;

(6) Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

(7) Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

b. If no activity is occurring on an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility and if an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, each representative surface shall be tested separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, in accordance with the appropriate test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules and shall be included in or eliminated from the total size assessment of disturbed surface area(s) depending upon test method results.

307 FUGITIVE DUST CONTROL MEASURES: The owner and/or operator of a nonmetallic mineral processing plant and/or a rock product processing plant shall implement the fugitive dust control measures described in this section of this rule. When selecting a fugitive dust control measure(s), the owner and/or operator of a facility may consider the site-specific and/or material-specific conditions and logistics of a facility. When doing so, some fugitive dust control measures may be more reasonable to implement than others. Regardless, any fugitive dust control measure that is implemented must achieve the applicable standard(s) described in Section 306 of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule. The owner and/or operator of a facility may submit a request to the Control Officer and the Administrator Of The Environmental Protection Agency (EPA) for the use of alternative control measure(s). The request shall include the proposed alternative control measure, the control measure that the alternative would replace, and a detailed statement or report demonstrating that the measure would result in equivalent or better emission control than the measures prescribed in this rule. Nothing in this rule shall be construed to prevent an owner and/or operator of a facility from making such demonstration. Following a decision by the Control Officer and the Administrator of the EPA to grant the petition, the facility shall incorporate the alternative control measure in any required Dust Control Plan.

307.1 Open Storage Piles And Material Handling: The owner and/or operator of a facility shall implement all of the following fugitive dust control

measures, as applicable, in compliance with Section 306.1 and Section 306.5 of this rule. For the purpose of this rule, open storage pile(s) and material handling does not include berms and guard rails that are installed to comply with 30 CFR 56.93000. However, such berms and guard rails shall be installed and maintained in compliance with Section 306.1 and Section 306.5 of this rule.

a. Prior to, and/or while conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary; or

(2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary, in compliance with Section 306.1 and Section 306.5 of this rule;

(2) Maintain a 1.5% or more soil moisture content of the open storage pile(s), in compliance with Section 306.1 and Section 306.5 of this rule;

(3) Locate open storage pile(s) in a pit/in the bottom of a pit. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

(4) Arrange open storage pile(s) such that storage pile(s) of larger diameter products are on the perimeter and act as barriers to/for open storage pile(s) that could create fugitive dust emissions. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

(5) Meet one of the stabilization standards in Section 306.5 of this rule; or

(6) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this fugitive dust control

measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

c. When installing new open storage pile(s) at an existing facility and/or when installing new open storage pile(s) at a new facility, the owner and/or operator shall implement all of the following fugitive dust control measures in compliance with Section 306.1 and Section 306.5 of this rule, only if it is determined to be feasible on a case-by-case basis through the Dust Control Plan by assessing the amount of open land available at the property at the time the new open storage pile(s) are formed:

(1) Install the open storage pile(s) at least 25 feet from the property line; and

(2) Limit the height of the open storage pile(s) to less than 45 feet.

d. For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain a water truck or other method that is capable of completely wetting the surfaces of open storage pile(s) in compliance with Section 306.1 and Section 306.5 of this rule.

307.2 Surface Stabilization Where Support Equipment And Vehicles Operate: The owner and/or operator of a facility shall stabilize surface soils where loaders, support equipment, and vehicles will operate by implementing one of the following fugitive dust control measures, in compliance with Section 306.4 and/or Section 306.5 of this rule, as applicable:

a. Pre-water surface soils;

b. Apply and maintain a dust suppressant, other than water; or

c. Apply a gravel pad, in compliance with the Section 307.6(b)(4) of this rule.

307.3 Haul/Access Roads:

a. The owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, in compliance with Section 306.4 of this rule, before engaging in the use of, or in the maintenance of, haul/access roads. Compliance with the provisions of this section of this rule shall not relieve any

person subject to the requirements of this section of this rule from complying with any other federally enforceable requirements (i.e., a permit issued under Section 404 of the Clean Water Act).

(1) Install and maintain bumps, humps, or dips for speed control and apply water, as necessary;

(2) Limit vehicle speeds and apply water, as necessary;

(3) Pave;

(4) Apply and maintain a gravel pad in compliance with Section 307.6(b)(4) of this rule;

(5) Apply a dust suppressant, other than water; or

(6) Install and maintain a cohesive hard surface.

b. For a new facility, if implementing one of the fugitive dust control measures described in Section 307.3(a) of this rule is determined to be technically infeasible as obtained/approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA) and as approved in the Dust Control Plan, then the owner and/or operator of a new facility shall maintain a minimum distance of 25 feet from the property line for haul/access roads associated with the new facility.

307.4 On-Site Traffic:

a. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to remain on internal roads with paved surfaces or cohesive hard surfaces in the permanent areas of the facility/operation that include entrances, exits, warehouses and maintenance areas, office areas, concrete plant areas, asphaltic plant areas, and parking and staging areas, as approved in the Dust Control Plan.

b. The owner and/or operator of a facility shall require all aggregate trucks to remain on internal roads subject to Section 307.4(a) of this rule, when entering and exiting aggregate loading areas/loading operations, as approved in the Dust Control Plan.

c. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to enter and exit the facility/operation only through entrances that comply with the trackout requirements in Section 307.5 of this rule and that comply with Section 306.5 of this rule.

307.5 Off-Site Traffic: When hauling and/or transporting bulk material off-site, the owner and/or operator of a facility shall implement all of the following control measures:

a. Load all haul trucks such that the freeboard is not less than three inches;

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Cover haul trucks with a tarp or other suitable closure.

307.6 Trackout:

a. **Rumble Grate And Wheel Washer:** The owner and/or operator of a new permanent facility and the owner and/or operator of an existing permanent facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day onto paved public roadways/paved areas accessible to the public shall install, maintain, and use a rumble grate and wheel washer, in accordance with all of the following conditions, as applicable. For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility.

(1) The owner and/or operator of a facility shall locate a rumble grate within 10 feet from a wheel washer. The rumble grate and wheel washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate and wheel washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate and wheel washer no less than 30 feet prior to each exit and that a rumble

grate and wheel washer at a shorter distance will be adequate to prevent trackout.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via the rumble grate first and then the wheel washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate and wheel washer to designate the speed limit as 5 miles per hour.

(4) The owner and/or operator of a facility shall pave the internal roads from the rumble grate and wheel washer to the facility exits leading to paved public roadways/paved areas accessible to the public.

(5) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks remain on the paved internal roads between the rumble grate and wheel washer and the facility exits leading to paved public roadways/paved areas accessible to the public.

b. Rumble Grate, Wheel Washer, Or Truck Washer: The owner and/or operator of a facility not subject to Section 307.6(a) of this rule shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following:

(1) A rumble grate, wheel washer, or truck washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate, wheel washer, or truck washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate, wheel washer, or truck washer no less than 30 feet prior to each exit and that a rumble grate, wheel washer, or truck washer at a shorter distance will be adequate to prevent trackout.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via a rumble grate, wheel washer, or truck washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate, wheel washer, or truck washer to designate the speed limit as 5 miles per hour.

(4) If haul/access roads/internal roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public in accordance with all of the following:

(a) Gravel pad shall be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

(b) Gravel pad shall have a gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad) and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

c. Exemptions For Wheel Washers: The owner and/or operator of a facility shall not be required to install, maintain, and use a wheel washer, if any one of the following are applicable:

(1) A facility has all paved internal roads and meters aggregate or related materials directly to a ready-mix or hot mix asphalt truck, with the exception of returned products. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule.

(2) A facility is less than 5 acres in land size and handles recycled asphalt and recycled concrete exclusively. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule on all unpaved internal roads leading to the facility exits leading to paved public roadways/paved areas accessible to the public.

(3) A facility has a minimum of ¼ mile paved internal roads leading from a rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public.

(4) A facility meets the definition of infrequent operations, as defined in Section 230 of this rule. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule. The gravel pad shall be installed for a distance of no less than 100 feet from the rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public. The owner and/or operator of the facility shall keep records in accordance with Section 500 of this rule, as applicable. The owner and/or operator of the facility shall notify the Control Officer in the event that the facility will operate more than 52 days per year based on the average rolling 3-year period after June 8, 2005 and the owner and/or operator of the facility shall comply with Section 307.6 of this rule, as applicable.

d. Trackout Distance: An owner and/or operator of a facility shall not allow trackout to extend a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public. Notwithstanding the proceeding, the owner and/or operator of a facility shall clean up all other trackout at the end of the workday.

e. Cleaning Paved Internal Roads: The owner and/or operator of a facility shall clean all paved internal roads in accordance with all of the following as applicable:

(1) The owner and/or operator of a facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of each production work shift, if there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road.

(2) The owner and/or operator of a facility with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of every other work day. On the days that paved internal roads are not swept, the owner and/or operator of a facility shall apply water as necessary to comply with Section 306 of this rule on at least 100 feet of paved internal roads or the entire length of paved internal roads leading to an exit to paved public roadways/paved areas accessible to the public, if such roadways are less than 100 feet long.

(3) The owner and/or operator of a facility, who purchases street sweepers after June 8, 2005, shall purchase street sweepers that meet the criteria of PM_{10} efficient South Coast Air Quality Management Rule 1186 certified street sweepers.

(4) The owner and/or operator of a new facility shall use South Coast Air Quality Management Rule 1186 certified street sweepers to sweep paved internal roads.

307.7 Pad Construction For Processing Equipment: The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures during the construction of pads for processing equipment and shall identify, in the Dust Control Plan, such fugitive dust control measures.

307.8 Spillage: In addition to complying with the fugitive dust emission limitations described in Section 306 of this rule and implementing fugitive dust control measures described in Section 307.1 through Section 307.9 of this rule, as applicable, the owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, when spillage occurs:

a. Promptly remove any pile of spillage on paved haul/access roads/paved internal roads;

b. Maintain in a stabilized condition any pile of spillage on paved haul/access roads/paved internal roads and remove such pile by the end of each day; or

c. Maintain in a stabilized condition all other piles of spillage with dust suppressants until removal.

307.9 Night-Time Operations: The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures at night, as approved in the Dust Control Plan.

308 FUGITIVE DUST CONTROL TECHNICIAN: The owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour shall have in place a Fugitive Dust Control Technician or his designee, who shall meet all of the following qualifications:

308.1 Be authorized by the owner and/or operator of the facility to conduct routine inspections, recordkeeping, and reporting to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with this rule.

308.2 Be authorized by the owner and/or operator of the facility to install, maintain, and use fugitive dust control measures, deploy resources, and shutdown or modify activities as needed.

308.3 Be available within 30 minutes.

308.4 Be issued a valid Certificate Of Completion of the Maricopa County Fugitive Dust Control Class.

308.5 Be certified to determine opacity as visible emissions in accordance with the provisions of the EPA Method 9 as specified in 40 CFR, Part 60, Appendix A.

309 DUST CONTROL PLAN: The owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that describes all fugitive dust control measures to be implemented, in order to comply with Section 306 and Section 307 of this rule. The Dust Control Plan shall, at a minimum, contain all the information described in Rule 310 (Fugitive Dust) of these rules. All other criteria associated with the Dust Control Plan shall meet the criteria described in Rule 310 (Fugitive Dust) of these rules.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies:

401.1 Dust Control Plan: When complying with Section 309 of this rule, if a Dust Control Plan is required to be revised, then a revised Dust Control Plan shall be submitted to the Control Officer by September 30, 2005 or three months after rule adoption, whichever comes first.

401.2 Pressure Control System: When complying with Section 303.2(e) of this rule, a pressure control system shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.3 Operational Overflow Warning System/Device: When complying with Section 302.2(a) and/or Section 303.2(a) of this rule, an operational overflow warning system/device shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.4 Fugitive Dust Control Technician: When complying with Section 308 of this rule, a Fugitive Dust Control Technician shall be in place by December 31, 2005 or six months after rule adoption, whichever comes first.

401.5 Surface Stabilization Where Support Equipment And Vehicles Operate: When complying with Section 307.2 of this rule, surface stabilization and/or paving shall be completed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.6 Trackout: When complying with Section 307.6 of this rule, a rumble grate, wheel washer, or truck washer shall be installed and a schedule for using PM_{10} efficient South Coast Air Quality Management Rule 1186 certified street sweepers shall be in place by January 1, 2006.

401.7 Process Emission Limitations And Controls: When complying with Section 301, Section 302, and/or Section 303 of this rule, process emission limitations shall be complied-with and controls shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any owner and/or operator of a facility subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Operational information required by this rule shall be kept in a complete and consistent manner on-site and be made available without delay to the Control Officer upon request.

501.2 Records of the following process and operational information, as applicable, are required:

a. General Data: Daily records shall be kept for all days that a facility is actively operating. Records shall include all of the following:

(1) Hours of operation;

(2) Type of batch operation (wet, dry, central);

(3) Throughput per day of basic raw materials including sand, aggregate, cement (tons/day);

(4) Volume of concrete and asphaltic concrete produced per day;

(5) Volume of aggregate mined per day (cubic yards/day); and

(6) Amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).

b. Additional Data For Dry Mix Concrete Plants And/Or Bagging Operations: Records shall include all of the following:

(1) Number of bags of dry mix produced;

(2) Weight (size) of bags of dry mix produced;

(3) Kind and amount of fuel consumed in dryer (cubic feet/day or gallons/day); and

(4) Kind and amount of any back-up fuel, if any.

c. Control And Monitoring Device Data: Records shall include all of the following:

(1) For a fabric filter baghouse:

(a) Date of inspection;

(b) Date and designation of bag replacement;

(c) Date of service or maintenance related activities; and

(d) Time, date, and cause of fabric filter baghouse failure and/or down time, if applicable.

(2) For a scrubber:

(a) Date of service or maintenance related activities;

(b) Liquid flow rate;

(c) Other operating parameters that need to be monitored to assure that the scrubber is functioning properly and operating within design parameters; and

(d) Time, date, and cause of scrubber failure and/or down time, if applicable.

501.3 ECS O&M Plan Records: An owner and/or operator of a facility shall maintain all of the following records in accordance with an approved O&M Plan:

a. Periods of time that an approved ECS is operating to comply with this rule;

b. Periods of time that an approved ECS is not operating;

c. Flow rates;

d. Pressure drops;

e. Other conditions necessary to determine if the approved ECS is functioning properly;

f. Results of visual inspections; and

g. Correction action taken, if necessary.

501.4 Dust Control Plan Records: An owner and/or operator of a facility shall compile, maintain, and retain records as described in Rule 310 (Fugitive Dust) of these rules.

502 COMPLIANCE DETERMINATION - 40 PART 60, APPENDIX A TEST METHODS ADOPTED BY REFERENCE: The test methods for those subparts of CFR Part 60, Appendix A, adopted as of July 1, 2004, as listed below, are adopted by reference as indicated. This adoption by reference includes no future editions or amendments. Copies of test methods referenced in Section 502 of this rule are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, Arizona, 85004-1942. When more than one test method is permitted for a compliance determination, then an exceedance of the limits established in this rule, determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 Grain Loading: Particulate matter and associated moisture content shall be determined using the applicable EPA Reference Methods 1 through 5, 40 CFR Part 60, Appendix A.

502.2 Opacity Determination: Opacity observations to measure the opacity of visible emissions shall be conducted in accordance with the test methods described in Appendix C (Fugitive Dust Test Methods) of these rules.

503 COMPLIANCE DETERMINATION - SOIL MOISTURE CONTENT AND SOIL COMPACTION CHARACTERISTICS TEST METHODS ADOPTED BY REFERENCE:

503.1 ASTM Method D2216-98 ("Standard Test Method For Laboratory Determination Of Water (Moisture) Content Of Soil And Rock By Mass"), 1998 edition.

503.2 ASTM Method D1557-91 (1998) ("Test Method For Laboratory Compaction Characteristics Of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)"), 1998 edition.

504 COMPLIANCE DETERMINATION - STABILIZATION STANDARDS TEST METHODS ADOPTED BY REFERENCE: The stabilization standards described in Section 306.5 of this rule shall be determined by using the following test methods in accordance with Appendix C (Fugitive Dust Test Methods) of these rules:

504.1 Appendix C, Section 2.1.1 (Silt Content Test Method) of these rules to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots.

504.2 Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules for a visible crust.

504.3 Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher.

504.4 Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%.

504.5 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%.

504.6 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements.

504.7 Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements.

504.8 An alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

505 CERTIFIED STREET SWEEPING EQUIPMENT LIST ADOPTED BY REFERENCE: The list of street sweeping equipment (as of July 9, 2004) that has met the South Coast Air Quality Management Rule 1186 certification standards is found in support documents for the South Coast Air Quality Management District Regulation XI (Source Specific Standards), Rule 1186 (PM_{10} Emissions From Paved And Unpaved Roads And Livestock Operations) and is adopted by reference. A copy of the list of certified street sweeping equipment can also be obtained at Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, Arizona, 85004.

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Appendix C

LIST OF CANDIDATE MSM/BACM CONTROL MEASURES

APPENDIX C
CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
CONSTRUCTION, LAND CLEARING, AND EARTHMOVING		
Soil Specific Requirements for Use of Surfactants and Tackifiers		
Clark County, Nevada	Construction Activities Dust Control Handbook	• Stabilize material or soil with, water, water and tackifier, or water and surfactant mixture, based on soil type, for the following operations: backfilling, clearing and grubbing, crushing, cut and fill, and trenching. Soil classified as having a low, moderate low, moderate high, or high emissions potential based on soil silt content and optimum moisture content [Clark County Construction Activities Dust Control Handbook] • An application for a dust control permit for a construction project of fifty (50) acres or more in area shall contain an actual soils analysis of the entire project.
Requirement for Dust Control Monitor at Large Construction Sites		
Clark County, Nevada	AQR § 94.7.5	• Dust control monitor required for projects with > 50 acres of actively disturbed area • Requirement remains in place until less than 50 acres are actively disturbed and previously disturbed areas have long term stabilization in place.
Coachella Valley, California	Final 2002 Coachella Valley PM10 SIP, June 2002	(Proposed) Dust control monitor (responsible person) required for sites with greater than or equal to 50 acres of actively disturbed soils. Monitor(s) must be hired by property owner or developer, have dust control as primary responsibility, and have the authority to initiate dust control measures.
Dust Control Class		
Clark County, Nevada	AQR § 94.7.6	**Require successful completion of a Clark County Department of Air Quality Management Dust Control Class at least once every three years for the following:** • **Construction site superintendent or other designated on-site representative of the project developer** • **All construction site supervisors and foremen** • **Water truck and water pull driver(s) for each construction project**
Site-Specific Dust Mitigation Plan and Permit Requirements		
Maricopa County	Rule 310, § 303 et. sec. § 304.3	• **Dust control plan required for operations that entail earthmoving operations with a disturbed surface area that equals or exceeds 0.10 acre.** • **Implement on primary and one contingency control for each dust generating operation.**
Clark County, Nevada	AQR § 94.4.2	• **A dust control permit is required for soil disturbing or construction activities greater than or equal to 0.25 acre in overall area, mechanized trenching greater than or equal to 100 feet in length, or for mechanical demolition of any structure greater than or equal to 1,000 square feet.** • **Site specific, soil-specific, and phase-specific dust mitigation plan implementing best management practices required where disturbed area and/or construction site greater than or equal to 10 acres, trenching greater than 1 mile, demolition with explosives.**
Coachella Valley, California	Final 2002 Coachella Valley PM10 SIP, June	Proposed revision to local dust control ordinance and AQMD Rule 403 and 403.1: • Currently, requires dust control plan before issuance of a grading permit for all earth-moving activities.

Agency	Preliminary Identified Affected Rules	Requirements
	2002	However, a revised dust control ordinance is proposed to include a requirement for local jurisdiction approval of a dust control plan for any site that requires a building permit if the project has disturbed surfaces greater than 5,000 square feet (.115 acres). • Sources that are not required to obtain a local jurisdiction grading permit or building permit (flood control/water district projects, school districts, CalTrans, etc.) are subject to AQMD Rule 403 and 403.1 requirements. In order to be consistent with the local dust control ordinance requirements, these activities are proposed to be required to obtain a dust control plan approved by the AQMD. The proposed thresholds are sites with more than one acre of disturbed surfaces, activities that import or export more than 100 cubic yards of material, or trenching activities greater than 100 feet in length. • The plan must have the required elements described in the Coachella Valley Dust Control Handbook (which will be developed concurrently with the revised dust control ordinance). Proposed specific work practices to be incorporated into the revised dust control ordinance: • Earth-moving operations on sites with greater than one acre of disturbed surfaces required to operate a water application system (i.e., water truck) while conducting earth-moving operations, if watering is the selected control measure. • Short-term stabilization (maintaining soils in a damp condition, surface crust, or chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months) required for after-hours/weekends. • Long-term stabilization techniques (e.g., vegetation, and chemical stabilization with access restriction) required within 10 days for areas where construction activities are not scheduled for 30 days.
South Coast Air Quality Management District (SCAQMD)	Rule 403 and Rule 403 Implementation Handbook	1) A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. (2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation. Best Available Control Measures Land Clearing/Earth-Moving (Rule 403 Implementation Handbook) (A) Watering (pre-grading): (1) Application of water by means of trucks, hoses and/or sprinklers prior to conducting any land clearing; (2) Pre-application of water to depths of proposed cuts. (A-1) Watering (post-grading): (1) **In active earthmoving areas water should be applied at sufficient frequency and quantity to prevent visible emissions from extending more than 100 feet from the point of origin.** (A-2) Pre-grading planning: (1) Grade each phase separately, timed to coincide with construction phase; or (2) Grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends. (B) chemical stabilizers: (1) only effective in areas, which are not subject to daily disturbances. (2) Vendors can supply information on product application and required concentrations to meet the specifications established by the Rule. (C Wind fencing: (1) Three- to five-foot barriers with 50% or less porosity located adjacent to

Agency	Preliminary Identified Affected Rules	Requirements
		roadways or urban areas can be effective in reducing the amount of windblown material leaving a site. Must be implemented in conjunction with either measure (A-1) or (B). (D) Cover haul vehicles: (1) Entire surface area of hauled earth should be covered once vehicle is full. (E) Bedliners in haul vehicles: (1) When feasible, use in bottom-dumping haul vehicles. (4) A person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. (H)(4) - This provision shall not apply if the dust control actions are implemented on a routine basis for each applicable fugitive dust source type. <u>High Wind Measure</u> (a) cease all active operations; or (b) apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.
Washoe County, Nevada	040.030 District Board of Health Regulations Governing Air Quality Management	1. Requires that reasonable precautions be taken to prevent the generation of dust. Reasonable precautions shall include one or more of the following, as required to control fugitive dust: cessation of operations, clean-up, sweeping, sprinkling, compacting, enclosure, chemical or asphalt sealing, and use of windscreens or snow fences. 2. Except when engaged in commercial agricultural operations, no person may disturb the topsoil by removing, altering, or overlaying the ground cover through scraping, burning, excavating, storing of fill, application of palliative, or any other method on any real property unless reasonable precautions are taken to prevent generation of dust during both the active development phases and thereafter if the property is to remain unoccupied, unused, vacant or undeveloped. For any project involving one (1) acre or more of unimproved surface area a Dust Control Plan must be submitted to, and approved by, the Control Officer prior to disturbing the topsoil as specified above, and/or paving, coating or otherwise applying any material, except water, to the surface. In the dust control plan, the Control Officer shall require use of palliatives, reseeding, or other means to minimize windblown dust, if determined necessary. For any proposed division of land, special use permit application or zone change, the Control Officer shall require the applicant to submit soils data and any other pertinent data for the area in which the development is proposed, if determined necessary. If a determination is made that disturbance or development of the site may cause the generation of dust, the Control Officer shall require one or more of the following: a. phased clearing of the land; b. the use of palliatives; c. the use of water; d. the use of snow fencing; e. the use of wind screens; f. reseeding g. controls on single lot development approved as a part of a land division subject to these regulations. After commencement of development if the approved elements of the dust control plan prove ineffective, the Control Officer shall require additional control measures to be instituted. Phasing will not be required as a

Agency	Preliminary Identified Affected Rules	Requirements
		control strategy after a project is under construction. In the case of subdivisions, condominiums and planned unit developments, a dust control plan must be submitted as a part of the final map approval process. If a development, which will involve the disturbance of more than one acre of land, requires a special use permit, the Control Officer shall require the dust control plan to be submitted and become a condition of the special use permit process. 3. No person shall cause or permit the handling or storage of any material in a manner, which results or may result in the generation of dust.
Mohave Desert Air Quality Management District (MDAQMD), California	Rule 403-1(C) Rule 403-2(C)(3)	• Dust control plan for construction/demolition source, maintain natural topography to extent possible • Dust control plan for construction source disturbing 100 or more acres • Describe applicable dust control measures • Provide stabilized access to the site as soon as possible (prior to project completion) • Maintain natural topography to extent possible • Construct parking lots and paved roads first, as feasible. • Construct upwind portions of project first, where feasible.
Requirements for Limiting Visible Emissions		
Maricopa County	Rule 310, § 301	Limit visible emissions from all construction activities to 20 percent opacity
Clark County, Nevada	AQR § 94.11.1 AQR § 94.11.2 AQR § 94.11.3	• **Limit visible emissions from all construction activities to 20 percent opacity; 50 percent opacity using the instantaneous method.** • **Limit visible dust plume from all construction activities to 100 yards, horizontally or vertically from the point of origin.** • Where dust control permit required but not issued or BACT not fully implemented, limit visible emissions from all to 20 percent opacity; 50 percent opacity using the instantaneous method; limit visible dust plume to less than 100 feet horizontally or vertically from the point of origin; or prohibit dust plume from crossing a property line.
SCAQMD, California	Rule 403(d)(1) Rule 403(f)(1)(A)	• **Prevent visible emissions from any active operation, open storage pile, or disturbed surface area from crossing the property line** • **For large operations, conduct watering as necessary to prevent visible dust emission from exceeding 100 feet in length in any direction**
Requirements for High Wind Conditions		
Maricopa County	Rule 310, § 300.1 Table 20	Provides that winds over 25 mph shall be an “affirmative defense” where dust emissions exceed 20 percent opacity and all applicable BACM have been implemented. <u>Wind Event Control Measures for dust generating activities</u> a. An owner and/or operator must implement one of the following control measures: 1. Cease dust generating operations for the duration of the condition/situation/event when the 60-minute average wind speed is greater than 25 miles per hour, and if dust generating operations are ceased for the

Agency	Preliminary Identified Affected Rules	Requirements
		remainder of the workday, stabilize the area; 2. Apply water or other suitable dust suppressant at least twice [once] per hour, in compliance with Section 301 of this rule; 3. Apply water as necessary to maintain a soil moisture content at a minimum of 12%,. 4. Implement (a)(2) or (a)(3), above, and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site. <u>Wind Event Control Measures – Temporary Disturbed Surface Areas (After Work Hours, Weekends, Holidays)</u> a. An owner and/or operator must implement one of the following control measures: 1. Uniformly apply and maintain surface gravel or dust suppressants, in compliance with Section 302.3 of this rule; 2. Apply water to all disturbed surface areas three times per day. If there is any evidence of wind-blown dust, increase watering frequency to a minimum of four times per day; 3. Apply water on open storage piles at least twice [once] per hour, in compliance with section 302.3 of this rule; or 4. Cover open storage piles with tarps, plastic, or other material such that wind will not remove the coverings. b. Suggested additional control measures for contingency plans: 1. Implement a combination of the control measures listed a (1) through a (4), above.
Clark County, Nevada	AQR § 94.9.3	**In the event there are wind conditions that cause fugitive dust emissions in excess of 20% opacity using the time averaged method of intermittent emissions method, in excess of 50% opacity using instantaneous method, or one hundred yard in length from the point of origin, in spite of the use of BACM, all construction activities that may contribute to these emissions shall immediately cease. Water trucks and water pulls shall continue to operate under these circumstances, unless poses a safety hazard [Clark County, AQR § 94.9.3].**
SCAQMD, California	Rule 403 Implementation Handbook	<u>Rule 403 Implementation Handbook Best Available Control Measures - Land Clearing/Earth-Moving</u> <u>High Wind Measure</u> (a) cease all active operations; or (b) apply water within 15 minutes to any soil surface which is being moved or otherwise disturbed.
SCAQMD, California	Rule 403.1(d) (applies only in the Coachella Valley)	Requires that additional dust mitigation measures be implemented for disturbed areas and storage and handling of bulk materials. Stabilization procedures shall include one or more of the following: (A) Application of water to at least 70 percent of the surface area of such bulk material deposits at least three times per day when there is evidence of wind driven fugitive dust; (B) Application of chemical dust suppressants in sufficient concentration so as to maintain a stabilized surface for a period of at least six months; (C) Installation of wind breaks of such design to reduce maximum wind gusts to less than 25 miles per hour in the area of the bulk material deposits.
Material Handling		
Clark County,	Construction Activity	• **Stabilize surface soils where loaders, support equipment and vehicles will operate by either: 1. Pre-**

Agency	Preliminary Identified Affected Rules	Requirements
Nevada	Dust Control Handbook – blasting, clearing and grubbing, crushing, screening, staging areas, trenching, truck loading, stockpiling, cut and fill	**water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate; or 2. Apply and maintain a dust palliative on surface soils where loaders, support equipment and vehicles will operate** • **Stabilize material during loading – empty loader bucket slowly and keep loader bucket close to the truck to maximize the drop height while dumping. Based on soil type apply water; water and tackifier mixture; or water and surfactant mixture prior to loading and while loading.**
TRACKOUT CONTROL		
Maricopa County	310.01 Fugitive Dust From Open Areas, Vacant Lots, Unpaved Parking Lots, And Unpaved Roadways	§306: In the event that erosion-caused deposition of bulk materials or other materials occurs on any adjacent paved roadway or paved parking lot, the owner and/or operator of the property from which the deposition eroded shall implement both of the following control measures. Exceedances of the opacity limit, due to erosion-caused deposition of bulk materials onto paved surfaces, shall constitute a violation of the opacity limit. a. Remove any and all such deposits by utilizing the appropriate control measures within 24 hours of the deposits' identification or prior to the resumption of traffic on pavement, where the pavement area has been closed to traffic; and b. Dispose of deposits in such a manner so as not to cause another source of fugitive dust.
Maricopa County	Rule 310 § 308.3 Trackout, Carry-Out, Spillage, and/or Erosion	Trackout control required for (1) all work sites with a disturbed surface area of one acres or larger., and (2) all work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day. • **Immediately, or within 30 minutes, clean up trackout that exceeds 50 feet, all other trackout must be cleaned up at the end of the workday; and implement one of the following control measures:** • **At all access points, install a grizzly or wheel wash system** • **At all access points, install a gravel pad at least 30 feet wide, 50 feet long, and 6 inches deep** • Pave starting from the point of intersection with a paved area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet
San JoaquinValley Unified Air Pollution Control District (SJVUAPCD)	Rule 8041	An owner/operator shall sufficiently prevent or cleanup carryout and trackout • The use of blower devices, or dry rotary brushes or brooms, for removal of carryout and trackout on public roads is expressly prohibited. • remove all visible carryout and trackout at the end of each workday. • Within urban areas, if carryout and trackout extends less than 50 feet from the nearest exit point of a site, the owner/operator shall remove all visible carryout and trackout at the end of each workday.
Clark Co., Nevada	AQR 94 & Construction Activities Dust Control Handbook	• Clean up mud and dirt track out at least once daily and when track out extends more than 50 feet • **Install and maintain trackout control devices at all access points where paved and unpaved access or travel routes intersect: (1) Install gravel pad(s) consisting of 1" to 3" rough diameter, clean, well graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash, or apply additional rock in gravel pad to maintain effectiveness; or (2) Install and maintain wheel shakers; or (3) Install and maintain wheel washer.**
Washoe County,	District Board of Health	6. Paved entry aprons or other effective cleaning techniques (e.g., wheel washers), shall be required by the

Agency	Preliminary Identified Affected Rules	Requirements
Nevada	Regulations Governing Air Quality Management 040.030 Dust Control	Control Officer, if determined necessary, to prevent tracking onto paved roadways. Paved entry aprons may include road sections of coarse aggregate or steel grate to "knock off" dirt which accumulates on the vehicle and/or vehicle wheels. Any material which is tracked onto a paved roadway must be removed (swept or washed) as quickly as safely possible. Exceptions to this provision may be made by the Control Officer for the construction, maintenance, and/or repair of paved roadways and for the application of de-icing and traction materials for wintertime driving safety.
Coachella Valley, CA	Final 2002 Coachella Valley PM10 SIP, June 2002	Proposed specific work practices to be incorporated into the revised dust control ordinance: • Track-out control device (washed gravel pad at least 30 feet wide, 50 feet long, and six inches deep, paving starting from the point of intersection with a paved public roadway and extending for a centerline distance of at least 100 feet and a width of at least 20 feet, wheel shaker device or wheel wash system) required for construction projects greater than or equal to five acres or those that import/export greater than or equal to 100 cubic yards per day. Additional track-out control devices may be considered during program implementation. Regardless of project size or track-out control device selected, material tracked-out onto a paved public or private road must be removed at anytime it extends more than 25 feet from a site entrance (approximate width of two travel lanes) and at the conclusion of the work day.
SCAQMD, California	403(d)(5)	(5) Any person in the South Coast Air Basin shall: (A) prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations; or (B) take at least one of the trackout control options listed below and: (i) prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations; and (ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each workday when active operations cease. <u>Track out control options:</u> (1) Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet. (2) Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
BULK MATERIAL HAULING AND TRANSPORTING		
Maricopa County	Maricopa County Rule 310 Table 13 Bulk Material Hauling/Transporting	Within the boundaries of the work site when crossing a paved area accessible to the public while construction is underway a. An owner and/or operator must implement all of the following control measures: **1. Load all haul trucks such that the freeboard is not less than 3 inches when crossing a paved**

Agency	Preliminary Identified Affected Rules	Requirements
		area accessible to the public while construction is underway; **2. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);** **3. Install a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse such work site;** **4. Spray material with water prior to loading and spray material with water while loading.** b. Suggested additional control measure for contingency plans: **1. Limit vehicle speeds to 15 m.p.h. on the work site**. When on-site within the boundaries of the worksite but not crossing a paved area accessible to the public a. An owner and/or operator must implement one of the following control measures: 1. Limit vehicular speeds to 15 miles per hour or less while traveling on the work site; 2. Apply water to the top of the load in compliance with Section 301 of this rule; or 3. Cover haul trucks with a tarp or other suitable closure. Off-site hauling and transporting onto paved areas accessible to the public a. An owner and/or operator must implement all of the following control measures: **1.** Cover haul trucks with a tarp or other suitable closure**;** **2. Load all haul trucks such that the freeboard is not less than 3 inches;** **3. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and** **4. Before the empty haul truck leaves the site, clean the interior of the cargo compartment or cover the cargo compartment.**
Clark County, Nevada	Construction Activities Dust Control Handbook – Truck Loading; Importing/Exporting Soil, Rock and Other Bulk Material	**a. Ensure all loads are covered prior to leaving the construction site and traveling on public roadways.** **b. Limit visible dust opacity from vehicular operations: apply water and limit vehicle speeds to 15 mph on the work site, or apply and maintain dust suppressant on haul roads.** **c. Check bell-dump truck seals regularly and remove any trapped rocks to prevent spillage** **d. Maintain 3-6 inches of freeboard to minimize spillage** **e. Stabilize materials during transport on site by using tarps or other suitable enclosures on haul trucks or stabilize materials with water.** f. **Clean wheels and undercarriage of haul trucks prior to leaving construction site.**

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
TCEQ	TAC §111.143. Materials Handling.	Applies in El Paso and portions of Harris and Nueces Counties: No person may cause, suffer, allow, or permit any material, except for abrasive material for snow and ice control, to be handled, transported, or stored without taking at least the following precautions to achieve maximum control of dust emissions to the extent practicable: (3) Application of water or suitable chemicals, or complete covering of materials contained in open-bodied trucks, trailers, or railroad cars transporting such materials which can create airborne particulate matter in areas where the general public has access. (A) Suitable wetting may be used as an alternative to covering in all areas except the City of El Paso. (B) Complete covering, at a minimum, is required in the City of El Paso.
Washoe County, Nevada	District Board of Health Regulations Governing Air Quality Management 040.030 Dust Control	5. Any vehicle operating on a paved roadway with a load of dirt, sand, or gravel susceptible to being dropped, spilled, leaked or otherwise escaping therefrom, must take one of the following control measures: a. Six (6) inches of freeboard is maintained within the bed of the vehicle. For the purposes of this regulation, "freeboard" means the vertical distance from the highest portion of the edge of the load to the lowest part of the rim of the truck bed. b. contain enough moisture to control dust emissions from the point of origin to their final destination. Wherever possible, the use of dust suppressants must be applied in conjunction with the water. c. the event that measures A or B are ineffective in preventing materials from escaping, tarps or other cargo covers shall be employed. This section does not prohibit a public maintenance vehicle from depositing sand on a paved roadway to enhance traction, or sprinkling water or other substances to clean or maintain a highway.
OPEN AREAS AND VACANT LOTS		
Maricopa County	310.01 Fugitive Dust From Open Areas, Vacant Lots, Unpaved Parking Lots, And Unpaved Roadways	§ 301 Vehicle Use In Open Areas And Vacant Lots: require implementation of one of the following control measures for open areas and vacant lots 0.10 acre or larger (4,360 square feet) and have a cumulative of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles: a. Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access, by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective control measures. b. Uniformly apply and maintain surface gravel or chemical/organic stabilizers to all areas disturbed by motor vehicles and/or off-road vehicles. 302 Open Areas And Vacant Lots: require implementation of one of the following control measures within 60 calendar days following the initial discovery of the disturbance for open areas and vacant lots have 0.5 acre or more (21,780 square feet) of disturbed surface area and remain unoccupied, unused, vacant, or undeveloped for more than 15 days: a. Establish vegetative ground cover on all disturbed b. Apply a dust suppressant to all disturbed surface areas c. Restore all disturbed surface areas such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions. d. Uniformly apply and maintain surface gravel
Clark Co., Nevada	Clark County June	**SIP commitment to hire ten new enforcement department staff members to implement enforcement for**

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
	2001, PM10 SIP, Appendix L, p. L-11.	**"wind erosion – vacant land, unpaved parking and race tracks"**
Clark Co., Nevada	Section 90.2.1.1(a) & (b)	Owner/operator **required to implement controls for open areas and vacant lots 5,000 square feet or larger,** such as: • Prevent motor vehicle access and stabilize disturbed surface. • Stabilize disturbed surface greater than 5,000 square feet with gravel or dust palliatives
Coachella Valley, California	Final 2002 Coachella Valley PM10 SIP, June 2002	Proposed, revised dust control ordinance: Owners/operators of **vacant lands with disturbed surfaces greater than or equal to 5,000 square feet** are required to either 1) prevent trespass by installing physical barriers such that a surface crust is developed, or 2) treat the disturbed surfaces such that a surface crust is formed. Treatment options include uniform application and maintenance of two inches of washed gravel or chemical/organic dust suppressants to all disturbed areas at a level sufficient to develop and maintain a surface crust. When an owner/operator has applied physical access restrictions and an acceptable surface crust has not been established, treatment of disturbed vacant lands with greater than or equal to 5,000 square feet will be required unless such treatments are considered technically unfeasibility.
SCAQMD, California	403(d)(1)	Disturbed areas must be controlled to prevent visible emissions from crossing the property line. Rule 403 Implementation Handbook – Disturbed Surface Areas/Inactive Construction Site Best Available Control Measures (Q) chemical stabilization – (1) Most effective when used on areas where active operations have ceased; (2)Vendors can supply information on methods for application and required concentrations. (R Watering – (1) Requires frequent applications unless a surface crust can be developed. (S) Wind fencing – (1) Three- to five-foot barriers with 50% or less porosity adjacent to roadways or urban areas can be effective in reducing the amount of wind blown material leaving a site. Must be used in conjunction with either measure (Q), (R , or (T). (T) Vegetation – (1) Establish as quickly as possible when active operations have ceased. <u>High Wind Measures</u> a. apply chemical stabilizers (to meet the specifications established by the Rule); or b. apply water to all disturbed surface areas 3 times per day.
PAVED ROADS		

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
Maricopa County	1999 Serious Area PM10 Plan for the Maricopa County Nonattainment Area, pp. 7-158 & 7-271	**PM10 efficient street sweepers - allocate $3.8 million CMAQ funds to encourage the purchase and utilization of PM10 efficient street sweepers (50% street sweeper fleet turnover by 2006)** Frequent Routine Sweeping or Cleaning of Paved Roads - City of Phoenix conducts routine sweeping of residential and major streets. The street sweeping schedule will be changed to coordinate sweeping with the uncontained trash pick-up during the 1997-1998 fiscal year. The City will continue to consider new street sweeping equipment which may be designed to reduce particulate emissions and/or to increase sweeping efficiency. ADOT has responsibility for maintenance of facilities on the State Highway System. Street sweeping is accomplished through intergovernmental agreements, private contracts, and ADOT personnel. Sweeping is conducted in various frequencies.
Clark County, Nevada	AQR § 93.2.2; AQR § 93.2.2.1 AQR § 93.2.3	**1. After January 1, 2001, require purchase of PM-efficient street sweepers for paved road and paved parking lot sweeping.** **2. The use of dry rotary brushes and blower devices for the removal of dirt, rock, or other debris from a paved road or paved parking lot is prohibited without the use of sufficient wetting to limit the visible emissions to no greater than 20% opacity**
Clark County, Nevada	Clark County, June 2001, PM10 SIP, Appendix J	**Established Street Sweeping Frequency for Paved Roads** • **Clark County Public Works – All classes of roads are swept every 7 to 10 days** • **City of Las Vegas – all classes of roads are swept every 2 weeks. Problem areas, such as roads around active construction sites, are swept more frequently, typically once per week.** • **City of North Las Vegas – all roads are swept twice monthly** • **State of Nevada – All freeways in Clark County are swept once a week; All arterials under state jurisdiction in Clark County are swept once a month.**
SCAQMD, California	Rule 1186 (e)(1)(A)	**Any government or government agency which contracts to acquire street sweeping equipment or street sweeping services for routine street sweeping on public roads that it owns and / or maintains, where the contract date or purchase or lease date is January 1, 2000 or later, shall acquire or use only certified street sweeping equipment.**
Texas Commission on Environmental Quality (TCEQ)	TAC §111.147. Roads, Streets, and Alleys.	Applies in El Paso and portions of Harris and Nueces Counties. No person may cause, suffer, allow, or permit any public, industrial, commercial, or private road, street, or alley to be used without taking at least the following precautions to achieve control of dust emissions: (2) Removal from public thoroughfares, as necessary, of soil or other materials, except for sand applied for the specific purpose of snow or ice control. **In the City of El Paso, removal of soil shall be by mechanical sweepers or their equivalent at the rate of four times per year for all public thoroughfares within the city limits and six times per year or as necessary for public thoroughfares within the central business district**. For the purpose of this section, the central business district shall be defined as that area bordered by Loop 375 to the south, Santa Fe Street to the west, Missouri Street to the north, and Kansas Street to the east. The City of El Paso shall spot clean dirty roadways, and shall maintain street sweeping records for two years. Sand applied for the specific purpose of snow or ice control shall be removed as soon as such control is no longer necessary.
UNPAVED HAUL/ACCESS ROADS		

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
Maricopa County	310 § 302.2 310 § 302.2 310 § 308.4 & Table 3	Work practice requirements Implement one or more of the following controls: 1. Limit vehicle speed to 15 mph and limit vehicular trips to no more than 20 per day; 2. Apply water, so that the surface is visibly moist; 3. Pave; 4. Apply and maintain gravel, recycled asphalt, or other suitable material; 5. Apply a suitable dust suppressant Stabilization requirements • Ensure visible fugitive dust emissions do not exceed 20% opacity, and • Ensure silt loading is less than 0.33 oz/ft2, or silt content does not exceed 6 percent. • As an alternative to meeting the stabilization requirements, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 mph.
Clark County, Nevada	AQR 94 and Construction Activities Dust Control Handbook – Traffic – Unpaved Routes and Parking Areas	• **Limit visible dust opacity from vehicular operations by either limit vehicle speeds to 15 mph or apply and maintaining dust palliative on all vehicle travel areas.** • Stabilize all haul routes and maintain in a stabilized condition by applying water; dust palliative; gravel; or supplement dust palliative or aggregate applications with watering, if necessary. • Stabilize all off-road and parking areas and maintain in a stabilized condition by applying water; gravel; recycled asphalt (or other suitable material); dust palliative (designed for vehicle traffic). Recommendations: Use of bumps or dips for speed control is encourages. Apply paving as soon as possible to all future roadway areas for PEP categories other than “high”
TCEQ	Concrete Batch Plant Technical Guidance for Mechanical Sources, January 2001, Draft	Best Available Control Technology Analysis - Current control practices include: 6. 70 to 95% control of fugitive dust emissions from roads and traffic areas (watering, wet or dry sweeping acceptable. It is important to note that in certain locations, paving may be required). These levels are guidelines to help the applicant get an idea of what the TCEQ is currently considering as BACT; however, these control levels are subject to change.
TCEQ	Air Quality Standard Permit for Temporary Rock Crushers, February 2002	(1) General Requirements (G) Dust emissions from all in-plant roads and active work areas that are associated with the operation of the crusher shall be minimized at all times by at least one of the following methods: (i) covered with a material such as, but not limited to, roofing shingles or tire chips (when used in combination with (ii) or (iii) of this subsection); (ii) treated with dust-suppressant chemicals; (iii) watered; or (iv) paved with a cohesive hard surface that is maintained intact and cleaned.
TCEQ	February 2002, Standard Permit for Rock Crushing Plants, BACT Analysis	3. The implementation of best management practices to reduce fugitive dust emissions from roads and traffic areas (water, application of environmentally safe chemicals, wet or dry sweeping, in certain locations paving may be required) as stated in the Special Conditions of the permit.

Agency	Preliminary Identified Affected Rules	Requirements
TCEQ	Air Quality Standard Permit For Hot Mix Asphalt Plants Effective Date July 10, 2003	(1) General Requirements (U) For a production rate of less than or equal to 300 tph, stockpiles and vehicle traffic areas (except for entrance and exit to the site) shall be located at least 25 feet from any property line. For a production rate of greater than 300 tph, stockpiles and vehicle traffic areas (except for entrance and exit to the site) shall be located at least 50 feet from any property line. In lieu of meeting the distance requirements for roads and stockpiles, the following shall occur: (i) roads and other traffic areas located less than the applicable distance requirement from the property line must be bordered by dust-suppressing fencing or barriers. The fencing or barriers shall be constructed to a height of at least 12 feet; and (ii) if any portion of a stockpile is located less than the applicable distance requirement from the property line, then the entire stockpile must be contained within a three-walled bunker which extends at least two feet above the top of the stockpile. **(3) Requirements Specific to Temporary Hot Mix Asphalt Plants** **(F) In order to maintain compliance with subsection (1)(H), emissions from all in-plant roads and traffic areas associated with the operation of the hot mix asphalt plant shall be minimized at all times by at least one of the following methods. In-plant roads and traffic areas shall be:** **(i) covered with a material such as, but not limited to, roofing shingles or tire chips (when used in combination with (ii) or (iii) of this subsection);** **(ii) treated with dust-suppressant chemicals;** **(iii) watered; or** **(iv) paved with a cohesive hard surface that is maintained intact and cleaned.** (4) Requirements Specific to Permanent Hot Mix Asphalt Plants (B) In order to maintain compliance with paragraph (1)(H), **all entry and exit roads and main traffic routes associated with the operation of the hot mix asphalt plant (including batch truck and material delivery truck roads) shall be paved with a cohesive hard surface to be maintained intact and cleaned. All batch trucks and material delivery trucks shall remain on paved surfaces when entering, conducting primary function, and leaving the property. All other traffic areas must comply with the control requirements listed in paragraph (3)(F).**
TCEQ	TAC §111.147. Roads, Streets, and Alleys.	Applies in El Paso and portions of Harris and Nueces Counties. No person may cause, suffer, allow, or permit any public, industrial, commercial, or private road, street, or alley to be used without taking at least the following precautions to achieve control of dust emissions: (**1) Application of asphalt, water, or suitable oil or chemicals on the following unpaved surfaces, except in the City of El Paso and the Fort Bliss Military Reservation, except as noted in §111.141, where the use of paving materials is the only acceptable method of dust control, unless otherwise specified:** **(A) Industrial Facility Roadways – all major in-plant roads and all truck or other heavy-duty vehicle pathways. Major in-plant roads shall be defined as those which are designed to accommodate two-way traffic and are at least 30 feet wide at least one point, measuring the distance from the edge of the undisturbed earth on either side of the established roadway.** The executive director, with the concurrence

Agency	Preliminary Identified Affected Rules	Requirements
		of the United States Environmental Protection Agency, may grant a waiver from the requirement to pave an industrial facility roadway if the owner of the roadway demonstrates that the cost of paving is economically unreasonable compared to other methods of dust control specified in subsection (1). (B) Public Thoroughfares - all roads and streets to which the public has general access. (C) Commercial Roads - all roads which serve as access for more than 50 employees or as access to more than ten heavy-duty truck parking spaces. (D) Residential Roads - all roads which serve as access for more than 20 residences and/or apartment units. (E) Alleys - in the City of El Paso, alleys shall be paved at the rate of at least 15 miles per year. (F) Levee Roads - in the City of El Paso, all levee roads and access to such roads shall be controlled with the application of asphalt, or suitable oil or chemicals.
TCEQ	Air Quality Standard Permit for Concrete Batch Plants, Effective Date July 10, 2003	**(3) General Requirements** **(E) Dust emissions from all in-plant roads and traffic areas associated with the operation of the concrete batch plant must be minimized at all times by at least one of the following methods:** **1. covered with a material such as, but not limited to, roofing shingles or tire chips (when used in combination with (ii) or (iii) of this subsection);** **(ii) treated with dust-suppressant chemicals;** **(iii) watered; or** **(iv) paved with a cohesive hard surface that is maintained intact and cleaned.** (4) Additional Requirements for Concrete Batch and Specialty Batch Concrete, Mortar, Grout Mixing, or Pre-cast Concrete Products Plants (D)Except for incidental traffic, vehicles used for the operation of the concrete batch plant may not be operated within 25 feet of any property line, except for entrance and exit to the site. In lieu of meeting this distance requirement, roads and other traffic areas must be bordered by dust preventive fencing or other barrier along all traffic routes or work areas within the 25-foot specified buffer area. These borders shall be constructed to a height of at least 12 feet. (5) Additional Requirements for Temporary Concrete Plants (C) (iii) Stationary equipment, stockpiles, or vehicles used for the operation of the concrete batch plant (except for incidental traffic and the entrance and exit to the site) may not be located or operated, respectively, within the following specified distances from any property line: (iv) for those facilities with production rates less than or equal to 200 cubic yards per hour, at least 25 feet; and (v) for those facilities with production rates more than 200 and less than or equal to 300 cubic yards per hour, at least 50 feet. (D) In lieu of meeting the distance requirements for roads and stockpiles of (5)(C)(iii), the following may be followed: (i) roads and other traffic areas within the buffer distance must be bordered by dust suppressing fencing or other barrier along all traffic routes or work areas. These borders shall be constructed to a height of at least twelve (12) feet; and

Agency	Preliminary Identified Affected Rules	Requirements
		(ii) stockpiles within this buffer distance must be contained within a three-walled bunker which extends at least two (2) feet above the top of the stockpile. (6) Additional Requirements for Other Concrete Plants **(C) All entry and exit roads and main traffic routes associated with the operation of the concrete batch plant (including batch truck and material delivery truck roads) shall be paved with a cohesive hard surface that can be maintained intact and shall be cleaned. All batch trucks and material delivery trucks shall remain on paved surface when entering, conducting primary function, and leaving the property. Other traffic areas must comply with the control requirements of paragraph (3)(E).** (D) The following distance limitations must be met: (ii) stationary equipment, stockpiles, or vehicles used for the operation of the concrete batch plant (except for incidental traffic and the entrance and exit to the site) may not be located or operated, respectively, within the following specified distances from any property line: (iii) for those facilities with production rates less than or equal to 200 cubic yards per hour, at least 25 feet; and (iv) for those facilities with production rates more than 200 and less than or equal to 300 cubic yards per hour, at least 50 feet. (E) In lieu of meeting the distance requirements for roads and stockpiles of (5)(C)(ii), the following may be followed: (i) roads and other traffic areas within the buffer distance must be bordered by dust suppressing fencing or other barrier along all traffic routes or work areas. These borders shall be constructed to a height of at least 12 feet; and (ii) stockpiles within this buffer distance must be contained within a three-walled bunker which extends at least two feet above the top of the stockpile.
San Joaquin Valley Air Pollution Control District (SJVAPCD)	Rule 8071 Unpaved Vehicle/Equipment Traffic Areas	5.1 In addition to the requirements of this rule, a person shall comply with all other applicable requirements of Regulation VIII to limit Visible Dust Emissions (VDE) to 20% opacity. 5.1.1 On each day that 75 or more vehicle trips will occur on an unpaved vehicle/equipment traffic area, the owner/operator shall limit VDE to 20% opacity from the unpaved vehicle/equipment traffic area by application and/or maintenance of at least one of the following control measures, or shall implement an APCO-approved Fugitive PM10 Management Plan as specified in Rule 8011 (General Requirements): 5.1.1.1. Watering; 5.1.1.2 Uniform layer of washed gravel; 5.1.1.3. Chemical/organic dust suppressants; 5.1.1.4. Vegetative materials; 5.1.1.5. Paving; 5.1.1.6. Any other method that effectively limits VDE to 20% opacity. 5.1.2 On each day that 100 or more vehicle trips will occur on an unpaved vehicle/equipment traffic area, the owner/operator shall limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by the application and/or maintenance of at least one of the following control measures, or shall implement an

Agency	Preliminary Identified Affected Rules	Requirements
		APCO-approved Fugitive PM10 Management Plan as specified in Rule 8011 (General Requirements): 5.1.2.1 Watering; 5.1.2.2 Chemical/organic stabilizers/suppressants in accordance with the manufacturer's specifications; 5.1.2.3 Roadmix; 5.1.2.4 Paving. 5.1.2.5 Any other method that results in a stabilized unpaved road surface.
Florida	Florida Administrative Code 62-296.414 Concrete Batching Plants.	The following requirements apply to new and existing emissions units producing concrete and concrete products by batching or mixing cement and other materials. This rule also applies to facilities processing cement and other materials for the purposes of producing concrete. (2) Unconfined Emissions. The owner or operator shall take reasonable precautions to control unconfined emissions from hoppers, storage and conveying equipment, conveyor drop points, truck loading and unloading, roads, parking areas, stock piles, and yards as required by Rule 62-296.320(4)(c), F.A.C. For concrete batching plants the following shall constitute reasonable precautions: (a) 1. Paving and maintenance of roads, parking areas, and yards. (a) 2. Application of water or environmentally safe dust-suppressant chemicals when necessary to control emissions (a) 3. Removal of particulate matter from roads and other paved areas under control of the owner or operator to mitigate reentrainment, and from building or work areas to reduce airborne particulate matter.
STOCKPILES/STORAGE PILES		
Maricopa County	Rule 310 § 308.7 & Table 12	Work Practices **Owner/operator shall comply with both of the following:** **a. During stacking, loading, and unloading operations, apply water, as necessary, to maintain compliance with 20 % opacity limit;** and **b. When not conducting stacking, loading, and unloading operations, comply with one of the following work practices:** **(1) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings;** **(2) Apply water to maintain a soil moisture content at a minimum of 12%;** **(3) Meet one of the stabilization requirements (visible crust; 100 cm/second threshold friction velocity; 50% flat vegetative cover; 30% standing vegetative cover,; 10% standing vegetative cover and 43 cm/second threshold friction velocity; 10% non-cover of non-erodible elements); or** **(4) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.. If implementing this subsection, subsection 308.6(b)(4), the owner/operator must also implement either (2) or (3) above.**

Agency	Preliminary Identified Affected Rules	Requirements
		Control Measures Owner/operator must implement one of the following control measures: 1. **Maintain with at least 70% optimum moisture content; or** **2. Stabilize open storage piles at completion of activity by following any of the following work practices:** • **Water open storage piles to form a crust immediately at the completion of activity;** • **Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.** • **Cover open storage piles with tarps, plastic, or other material such that the coverings will not be dislodged by wind.** Suggested additional control measures for contingency plans 1. Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate. 2. Remove material from the downwind side of the storage pile when safe to do so.
Clark County, Nevada	AQR 94.8.4 & 94.8.5 and Construction Activities Dust Control Handbook - Stockpiling	• Stockpiles located within one hundred (100) yards of occupied buildings shall not be constructed over eight (8) feet in height [AQR § 94.8.4]. • Stockpiles over eight (8) feet in height shall have a road bladed to the top to allow water truck access or shall have a sprinkler irrigation system installed, used and maintained [AQR § 94.8.4]. • To the extent possible, maintain stockpile to avoid steep sides. • **Stabilize surface soils where support equipment and vehicles will operate by pre-watering and maintaining surface soils in a stabilized condition; or by applying and maintaining a dust palliative on surface soils** • Stabilize stockpile materials during handling by maintaining stockpile materials with at least 70% optimum moisture content or removing material from the downwind side of the stockpile, when safe to do so. • **Based on soil type apply water; water and tackifier mixture; or water and surfactant mixture during stacking, loading and unloading operations.** • Stabilize stockpiles at completion of activity by either watering stockpiles to form a crust immediately at the completion of activity; apply and maintain a dust palliative to all outer surfaces of the stockpiles; provide and maintain wind barriers on 3 sides of the pile, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and made of material with a porosity of 50% or less; or apply a cover or screen to stockpiles.
TCEQ	Air Quality Standard Permit for Temporary Rock Crushers, February 2002	(H) All stockpiles shall be sprinkled with water, dust-suppressant chemicals, or covered, as necessary, to minimize dust emissions. (I) Raw material and product stockpile heights shall not exceed 45 feet.
TCEQ	Air Quality Standard	(M) All stockpiles shall be sprinkled with water, dust-suppressant chemicals, or covered, as necessary, to

Agency	Preliminary Identified Affected Rules	Requirements
	Permit For Hot Mix Asphalt Plants Effective Date July 10, 2003	minimize dust emissions.
TCEQ	Air Quality Standard Permit for Concrete Batch Plants, Effective Date July 10, 2003	(3)(F) All stockpiles shall be sprinkled with water, dust-suppressant chemicals, or covered, as necessary, to minimize dust emissions. (5) Additional Requirements for Temporary Concrete Plants **C (iii) Stationary equipment, stockpiles, or vehicles used for the operation of the concrete batch plant (except for incidental traffic and the entrance and exit to the site) may not be located or operated, respectively, within the following specified distances from any property line:** **(iv) for those facilities with production rates less than or equal to 200 cubic yards per hour, at least 25 feet; and** **(v) for those facilities with production rates more than 200 and less than or equal to 300 cubic yards per hour, at least 50 feet.** **(D) In lieu of meeting the distance requirements for roads and stockpiles of (5)C(iii), the following may be followed:** **(i) roads and other traffic areas within the buffer distance must be bordered by dust suppressing fencing or other barrier along all traffic routes or work areas. These borders shall be constructed to a height of at least twelve (12) feet; and (ii) stockpiles within this buffer distance must be contained within a three-walled bunker which extends at least two (2) feet above the top of the stockpile.** (6) Additional Requirements for Other Concrete Plants (D) The following distance limitations must be met: **(ii) stationary equipment, stockpiles, or vehicles used for the operation of the concrete batch plant (except for incidental traffic and the entrance and exit to the site) may not be located or operated, respectively, within the following specified distances from any property line:** **(iii) for those facilities with production rates less than or equal to 200 cubic yards per hour, at least 25 feet; and** **(iv) for those facilities with production rates more than 200 and less than or equal to 300 cubic yards per hour, at least 50 feet.** **(E) In lieu of meeting the distance requirements for roads and stockpiles of (5)C(ii), the following may be followed:** **(i) roads and other traffic areas within the buffer distance must be bordered by dust suppressing fencing or other barrier along all traffic routes or work areas. These borders shall be constructed to a height of at least 12 feet; and** **(ii) stockpiles within this buffer distance must be contained within a three-walled bunker which extends at least two feet above the top of the stockpile.**
TCEQ	February 2002, Standard Permit for Rock Crushing Plants,	1. A minimum of 70% reduction of fugitive dust emissions from stockpiling of aggregate material (sufficient application of water by sprays or fog rings).

Agency	Preliminary Identified Affected Rules	Requirements
	BACT Analysis	
Florida	Florida Administrative Code 62-296.414 Concrete Batching Plants.	The following requirements apply to new and existing emissions units producing concrete and concrete products by batching or mixing cement and other materials. This rule also applies to facilities processing cement and other materials for the purposes of producing concrete. (2) Unconfined Emissions. The owner or operator shall take reasonable precautions to control unconfined emissions from hoppers, storage and conveying equipment, conveyor drop points, truck loading and unloading, roads, parking areas, stock piles, and yards as required by Rule 62-296.320(4)C, F.A.C. For concrete batching plants the following shall constitute reasonable precautions: (a) 4. Reduction of stock pile height or installation of wind breaks to mitigate wind entrainment of particulate matter from stockpiles.
Wisconsin	Wisconsin Administrative Code NR 415.04	(2) In addition to meeting the requirements of sub. (1), any direct or portable source located in an area identified in s. NR 415.035 (1); and any direct or portable source located near the areas whose aggregate fugitive dust emissions may cause an impact on the ambient air quality in the areas equal to or greater than an annual concentration of one microgram per cubic meter or a maximum 24–hour concentration of 5 micrograms per cubic meter, as determined by the analysis under ch. NR 401, shall meet the following RACT requirements: **(a) Storage piles having a material transfer greater than 100 tons in any year are subject to the following requirements:** **1. Storage piles of material having a silt content of 5% to 20% shall be treated with water, surfactants, stabilizers or chemicals; draped; or enclosed on a minimum of 3 sides. Access areas surrounding storage piles shall be watered, cleaned or treated with stabilizers as needed to prevent fugitive dust from vehicle traffic.** **2. Storage piles of materials having a silt content of 20% or more shall be completely enclosed or draped except any part being worked, loaded or unloaded. Access areas surrounding storage piles shall be watered, cleaned or treated with stabilizers as needed to prevent fugitive dust from vehicle traffic.**
SCAQMD	Rule 403 (d)(1) & (h)(2). Rule 403 Implementation Handbook, January 1999, pp. 6-4.	**1) A person shall not cause or allow the emissions of fugitive dust from any active operation, <u>open storage pile</u>, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. Exemption for wind gusts exceeding 25 mph, high wind control measures are implemented. High wind measures for open storage piles - (a) apply water twice per hour; or (b) Install temporary coverings[SCAQMD Rule 403(d)(1) & (h)(2)].** (2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation. <u>BACM for Storage Piles (Rule 403 Implementation Handbook)</u>: <u>(L) Wind sheltering</u> - (1) enclose in silos; (2) Install three-sided barriers equal to height of material, with no more than 50 percent porosity.

Agency	Preliminary Identified Affected Rules	Requirements
		(M) Watering – (1) Application methods include: spray bars, hoses and water trucks; (2) Frequency of application will vary on site-specific conditions. (N) Chemical stabilizers – (1) Best for use on storage piles subject to infrequent disturbances (O) altering load-in/load-out procedures – (1) Confine load-in/load-out procedures to leeward (downwind) side of the material. Must be used in conjunction with either measure (L), (M), (N), or (P). (P) Coverings – (1) Tarps, plastic, or other material can be used as a temporary covering; (2) when used, these should be anchored to prevent wind from removing coverings. (4) A person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. (H)(4) - This provision shall not apply if the dust control actions are implemented on a routine basis for each applicable fugitive dust source type.
Bay Area Air Quality Management District	Best Available Control Technology (BACT) Guideline http://www.baaqmd.gov/pmt/bactworkbook/default.htm	Solid Material Storage – Enclosed: Achieved in Practice - **Vent to a baghouse w/ <0.01 gr/dscf; or water spray or adequate material moisture for wet material** Solid Material Storage – Open: Technologically Feasible/Cost Effective - **Enclosed storage**; Achieved in Practice - **Water spray with chemical suppressants**
INDUSTRIAL NON-STACK: MATERIAL HANDLING		
Maricopa County	Maricopa County Rule 310 Table 11 Bulk Material Handling Operations	Work Practices during stacking, loading and unloading operations: An owner and/or operator must implement all of the following control measures: 1. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping; 2. Implement either one of the following control measures: a. Spray material with water prior to stacking, loading and unloading, and while stacking, loading, and unloading, or b. Spray material with a dust suppressant other than water prior to stacking, loading and unloading, and while stacking, loading, and unloading.
TCEQ	Permit by Rule §106.144. Bulk Mineral Handling.	All bulk mineral product (except asbestos) handling facilities that operate in compliance with the following conditions of this section are permitted by rule. (1) **All material shall be transported in a closed conveying system and all exhaust air to the atmosphere shall be vented through a fabric filter having a maximum filtering velocity of 4.0 feet per minute (ft/min) with mechanical cleaning or 7.0 ft/min with automatic air cleaning.** (2) All permanent in-plant roads and vehicle work areas shall be watered, treated with dust-suppressant chemicals, oiled, or paved and cleaned as necessary to achieve maximum control of dust emissions. (3) The facility (including associated stationary equipment and stockpiles) shall be located at least 300 feet from any recreational area, school, residence, or other structure not occupied or used solely by the owner of the property upon which the facility is located.

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
SCAQMD	BACT Guidelines for Non-Major Polluting Facilities	Bulk Solid Material Handling – Other Dry Materials Handling (includes conveying, size reduction and classification) **Enclosed Conveyors and Baghouse**
SJVAPCD	Rule 8031 Bulk Materials (adopted November 15, 2001)	A. Handling/Storage Of Bulk Materials: A1 When handling bulk materials, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20% opacity. A2 When storing bulk materials, comply with the conditions for a stabilized surface as defined in Rule 8011; or A3 Cover bulk materials stored outdoors with tarps, plastic, or other suitable material and anchor in such a manner that prevents the cover from being removed by wind action; or A4 Construct and maintain wind barriers sufficient to limit VDE to 20% opacity. If utilizing fences or wind barriers, control measure A1 shall also be implemented.
Florida	FAC 62-296.711 Materials Handling, Sizing, Screening, Crushing and Grinding Operations.	(1) The emission limitations apply to the handling, sizing, screening, crushing, or grinding of the materials such as, but not limited to, cement, clinker, fly ash, coke, gypsum, shale, lime, sulfur, phosphatic materials, slag, and grain or grain products, including but not limited to the following types of operations: (a) Loading or unloading of materials to or from such containers as railcars, trucks, ships, and storage structures; (b) Conveyor systems other than portable conveyor systems; (c Storage of materials in storage structures, such as silos or enclosed bins, which have a storage capacity of fifty cubic yards or more; (d) crushing and/or grinding operations; (e) sizing and/or rescreening operations; (f) static drop transfer points where the discharge point and receiving point of the materials being handled are not moving in relationship to one another. The emission limitations do not apply to emissions from materials handling, sizing, screening, crushing and grinding operations governed by Rule 62-296.705, F.A.C., Phosphate Process Operations or Rule 62-296.704, F.A.C., Asphalt Concrete Plants. (2) Emission Limitations. (a) **No owner or operator of an emissions unit governed by Rule 62-296.711, F.A.C., shall cause, permit, or allow any visible emissions (five percent opacity) from such emissions unit** except that at the point where material is being discharged to the hold of a ship from a conveyor system. **When the conveyor and/or hatch covering is moved, an opacity of 10 percent will be allowed.** (b) If, in order to comply with the requirements of paragraph (a) above, it is necessary to **totally or partially enclose an operation and exhaust particulate laden gases through a vent or stack, emissions of particulate from such vent or stack shall not exceed 0.03 gr/dscf.**

APPENDIX C

CANDIDATE BACM/MSM CONTROL MEASURES FOR SIGNIFICANT SOURCE CATEGORIES

Agency	Preliminary Identified Affected Rules	Requirements
TCEQ	Permit by Rule §106.148. Material Unloading.	Railcar or truck unloading of wet sand, gravel, aggregate, coal, lignite, and scrap iron or scrap steel (but not including metal ores, metal oxides, battery parts, or fine dry materials) into trucks or other railcars for transportation to other locations is permitted by rule, provided the following conditions of this section are met. (1) Bulk materials shall not be stored on-site. (2) Water sprays or the equivalent must be installed and used as necessary at material handling operations to achieve maximum control of dust emissions. (3) All permanent in-plant roads and vehicle work areas shall be watered, treated with dust-suppressant chemicals, oiled, or paved and cleaned as necessary to achieve maximum control of dust emissions.
TCEQ	TAC §111.143. Materials Handling.	Applies in El Paso and portions of Harris and Nueces Counties: No person may cause, suffer, allow, or permit any material, except for abrasive material for snow and ice control, to be handled, transported, or stored without taking at least the following precautions to achieve maximum control of dust emissions to the extent practicable: (1) Application of water or suitable chemicals or some other covering on materials stockpiles and other surfaces which can create airborne dusts. (2) Installation, maintenance, and proper use of hoods, fans, and filters to enclose, collect, and clean the emissions of dusty materials
Bay Area Air Quality Management District	Best Available Control Technology (BACT) Guideline http://www.baaqmd.gov/pmt/bactworkbook/default.htm	Solid Material Handling – Dry: Achieved in Practice - **Enclosure of size reduction and classification equipment, conveyors, and associated material transfer points and vent to baghouse(s0 w/ <0.01 gr/dscf**
Industrial Stack and Non-stack: Concrete Batch		
Maricopa County	316 Nonmetallic mineral mining & processing § 303 Limitations – Concrete Plants and Bagging Operations	No person shall discharge or cause or allow to be discharged into the ambient air: § 303.1 Stack emissions exceeding 7% opacity. § 303.2 Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper or crusher. § 303.3 Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper or crusher.
TCEQ	Concrete Batch Plant Technical Guidance for Mechanical Sources, January 2001, Draft	**Best Available Control Technology Analysis - Current control practices include:** **1. All dry material storage silos equipped with fabric filter baghouses having a maximum outlet grain loading of 0.01 grains per dry standard cubic foot (gr/dscf).** **2. All storage silos equipped with audible or visual warning devices to prevent overloading.** **3. All aggregate material washed prior to delivery.** 4. At least 70% control of fugitive dust emissions from the stockpiling and handling of aggregate material (this can be achieved by sufficient application of water by sprays or fog rings). **5. At least 95% control of dust emissions from the weigh hopper, mixer, and/or truck drop point (usually achieved by a baghouse and suction shroud).**

Agency	Preliminary Identified Affected Rules	Requirements
		These levels are guidelines to help the applicant get an idea of what the TCEQ is currently considering as BACT; however, these control levels are subject to change.
TCEQ	Air Quality Standard Permit for Concrete Batch Plants, Effective Date July 10, 2003	(3) General Requirements **A) All cement/flyash storage silos and weigh hoppers shall be equipped with a fabric or cartridge filter or vented to a fabric or cartridge filter system.** (B) Fabric filters and collection systems shall meet all of the following: (i) any fabric or cartridge filter, any fabric or cartridge filter system, and any suction shroud shall be maintained and operated properly with no tears or leaks; **(ii) All filter systems (including any central filter system) shall be designed to meet at least 0.01 outlet grain loading (grains/dry standard cubic foot);** (iii) **all filter systems, mixer loading, and batch truck loading emissions control devices shall meet a performance standard of no visible emissions exceeding 30 seconds in any six-minute period** as determined using U.S. Environmental Protection Agency (EPA) Test Method (TM) 22; and (iv) **when cement or flyash silos are filled during non-daylight hours, the silo filter system exhaust shall be sufficiently illuminated to enable a determination of compliance with the visible emissions requirement** in (3)(B)(iii) of this permit. (C) Conveying systems for the transfer of cement/flyash shall meet all of the following: (i) **conveying systems to and from the storage silos shall be totally enclosed, operated properly, and maintained with no tears or leaks; and** **(ii) these systems, except during cement/flyash tanker connect and disconnect, shall meet a performance standard of no visible emissions exceeding 30 seconds in any six-minute period** as determined using EPA TM 22. (D) **A warning device shall be installed on each bulk storage silo. This device shall alert operators in sufficient time prior to the silo reaching capacity during loading operations,** so that the loading operation can be stopped prior to filling to such a level as to potentially adversely impact the pollution abatement equipment. (G) **Spillage of materials used in the batch shall be immediately cleaned up and contained or dampened so that dust emissions are minimized.** 4) Additional Requirements for Concrete Batch and Specialty Batch Concrete, Mortar, Grout Mixing, or Pre-cast Concrete Products Plants (A) **Site production shall not exceed 30 cubic yards per hour**. (B) As an alternative to the requirement in paragraph (3)(A) of this section, the cement/flyash weigh hopper may be vented inside the batch mixer. (C) **Dust emissions at the batch mixer feed shall be controlled by one of the following:** **(i) a spray device which eliminates visible emissions;** **(ii) a pickup device delivering air to a fabric or cartridge filter;**

Agency	Preliminary Identified Affected Rules	Requirements
		(iii) an enclosed batch mixer feed such that no visible emissions occur; or **(iv) conducting the entire mixing operation inside the enclosed process building such that no visible emissions from the building occur during mixing activities.** (5) Additional Requirements for Temporary Concrete Plants A temporary concrete plant is one that occupies a designated site for not more than 180 consecutive days or supplies concrete for a single project, but no other unrelated projects. (A) Site **production shall be limited to no more than 300 cubic yards per hour**. (B) Dust control at the truck drop or mixing point shall comply with one of the following: (i) Facilities which **occupy a site for less than 180 consecutive days and have production rates less than 200 cy/hr may load rotary mix trucks through a discharge spout equipped with a water fog ring having low-velocity fog nozzles spaced to create a continuous fog curtain that minimizes dust emissions. If a water fog ring is used at the truck drop point, the visible emissions limitations (and associated compliance determination methods) of subsection (3)(B)(3) and (4) must be met.** (ii) **All other facilities must use a suction shroud and fabric filter /cartridge filter system. The suction shroud or other pickup device shall be installed at the batch drop point (drum feed for central mix plants) and vented to a fabric or cartridge filter system with a minimum of 4,000 actual cubic feet per minute of air and must meet subsection (3)(B).** (C) All of the following applicable distance limitations must be met. For concrete batch plants which supply concrete for a single public works project, the "property line" measurements for purposes of compliance with this standard permit and 30 TAC § 111.155 shall be made to the outer boundaries of the designated public property, roadway project and associated rights-of-way. (**i) The suction shroud baghouse exhaust or truck drop point shall be located at least 100 feet from any property line.** **(ii) For those facilities with a water fog ring, the truck drop point shall be a minimum of 300 feet from the nearest non-industrial receptor.** (6) Additional Requirements for Other Concrete Plants **(A) Site production shall be limited to no more than 300 cubic yard per hour.** **(B) A suction shroud or other pickup device shall be installed at the batch drop point (drum feed for central mix plants) and vented to a fabric or cartridge filter system with a minimum of 4,000 actual cubic feet per minute of air.** **(D) The following distance limitations must be met:** **(i) the suction shroud baghouse exhaust shall be at least 100 feet from any property line;**
Bay Area Air Quality Management District	Best Available Control Technology (BACT) Guideline for Concrete Batch http://www.baaqmd.gov	**< 5 cubic yards per batch** Achieved in Practice - **Water spray for aggregate handling, aggregate storage piles, and site road surfaces; and enclosure and venting of cement handling and storage to baghouse w/ <0.01 gr/dscf** **≥5 cubic yards per batch**

Agency	Preliminary Identified Affected Rules	Requirements
	/pmt/bactworkbook/default.htm	Technologically Feasible/cost Effective - **Water spray w/ chemical suppressants for aggregate handling and storage piles; and paving of site road surfaces; and enclosure and venting of cement handling and storage to baghouse w/ ≤0.0013 gr/dscf** Achieved in Practice: Water spray for aggregate handling, aggregate storage piles, and site road surfaces; and enclosure and venting of cement handling and storage to baghouse w/ ≤0.01 gr/dscf
Florida	Florida Administrative Code 62-296.414 Concrete Batching Plants.	The following requirements apply to new and existing emissions units producing concrete and concrete products by batching or mixing cement and other materials. This rule also applies to facilities processing cement and other materials for the purposes of producing concrete. (1) Stack Emissions. Emissions from silos, weigh hoppers (batchers), and other enclosed storage and conveying equipment shall be controlled to the extent necessary to **limit visible emissions to 5 percent opacity**. (2) Unconfined Emissions. The owner or operator shall take reasonable precautions to control unconfined emissions from hoppers, storage and conveying equipment, conveyor drop points, truck loading and unloading, roads, parking areas, stock piles, and yards as required by Rule 62-296.320(4)(c), F.A.C. For concrete batching plants the following shall constitute reasonable precautions: (b) Use of spray bar, chute, or partial enclosure to mitigate emissions at the drop point to the truck.
SCAQMD	BACT Guidelines for non-major polluting facilities	Concrete batch plant Central mixed, < 5 cubic yards/batch – water spray Central mixed, ≥ 5 cubic yards/batch – baghouse for cement handling and adequate moisture in aggregate Transit-mixed – baghouse venting the cement weigh hopper and the mixer truck loading station; and adequate aggregate moisture
SCAQMD	2003 Air Quality Management Plan, Final Appendix IV-A: Stationary Source Control Measure – Aggregate and cement manufacturing operations	(Proposed) control measures that would establish prescriptive measures to control fugitive dust from area sources within aggregate facilities and cement plants as well as evaluate whether additional controls are necessary for the control of PM10 for sources at aggregate and cement manufacturing plant operations subject to Rules 404, 405, and 1112.1. Examples of fugitive dust control requirements include: 1. Pre-application of water prior to material extraction 2. Application of chemical dust suppressants or establishment of vegetative ground cover to inactive disturbed areas. **3. Chemical treatment or paving of internal haul roads** **4. Covering of materials conveyors and haul vehicles** **5. Use of enclosures or hooding material at transfer points and screen operations.** 6. **Installation of wheel washing systems where haul vehicles exit the site.**
INDUSTRIAL STACK AND NON-STACK: ASPHALT BATCH PLANTS		
Agency	**Preliminary Identified Affected Rules**	**Requirements**
Maricopa County	Rule 316 § 302 limitations - asphaltic	No person shall discharge or cause or allow to be discharged into the ambient air: • Stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate

Agency	Preliminary Identified Affected Rules	Requirements
	concrete plants	matter. • Fugitive dust emissions exceeding 20% opacity from any other affected operation or process source.
Florida	FAC 62-296.704 Asphalt Concrete Plants	(1)The emission limitations apply to any facility used to manufacture asphalt concrete by heating and drying aggregate and mixing with asphalt cements, excluding unloading and storage of raw materials. (2) Emission Limitations. No owner or operator of an asphalt concrete plant shall cause, permit, or allow the emission of particulate matter in excess of 0.06 gr/dscf, or visible emissions the density of which is greater than 20 percent opacity.
Bay Area Air Quality Management District	Best Available Control Technology (BACT) Guideline http://www.baaqmd.gov/pmt/bactworkbook/default.htm	Asphalt Batch Plant – Material Handling 1. Technologically Feasible/ Cost Effective - **Enclosure of conveyors, transfer points, size reduction and classification equipment, and vent to baghouse(s) w/ <0.01 gr/dscf; Water spray w/ chemical suppressants of storage piles; Paving of site road surfaces** 2. Achieved in Practice - **Water spray w/ chemical suppressants of materials on conveyors, transfer points, storage piles, and site road surfaces; Enclosure of size reduction and classification equipment and vent to a baghouse w/<0.01 gr/dscf** Asphalt (Hot Mix) Drum Mix Facilities 2. Achieved in Practice - **≤0.01 gr/dscf**
TCEQ	Air Quality Standard Permit For Hot Mix Asphalt Plants Effective Date July 10, 2003	This air quality standard permit authorizes the air emissions from the operation of hot mix asphalt plants that meet the conditions listed in section (1) and section (2) and either section (3) for temporary plant sites or section (4) for permanent plant sites. (1) General Requirements (A) For the purposes of this standard permit, a hot mix asphalt plant is defined as a facility that produces or will produce one or more of the following: standard hot mix asphalt, asphalt mixes made with Performance Grade (PG) binders, asphalt mixes made with crumb rubber, and pre-coat aggregate. (G) For all facilities that are authorized by this standard permit, aggregate materials (rock, sand, etc.) received at the plant site shall be used at that site and shall not be transported to another site unless the material is left from a temporary project and removed from the site when the plant vacates the site. The storage of raw aggregate materials at the site for use at other sites requires a separate authorization under 30 TAC Chapter 116, Control of Air Pollution by Permits for New Construction or Modification, 30 TAC Chapter 106, Permits by Rule, or other appropriate authorization. (H) Except for those periods described in 30 TAC § 101.201 Emissions Event Reporting and Recordkeeping Requirements and 30 TAC § 101.211 Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; **visible fugitive emissions from recycled asphalt product (RAP) breakers, screens, transfer points on belt conveyors, stockpiles, work areas and any in-plant roads associated with the facility shall not leave the property for a period exceeding 30 seconds in any six-minute period** as determined by U.S. Environmental Protection Agency (EPA) Test Method (TM) 22. **(I) The drum dryer exhaust shall be vented to, and controlled by, a properly sized fabric filter baghouse.**

Agency	Preliminary Identified Affected Rules	Requirements
		(J) **Lime and mineral fillers shall be transported and stored in a closed system and all exhaust air to the atmosphere shall be vented through a properly sized fabric filter. An operational overflow warning device shall be installed on each bulk storage silo to alert operators in sufficient time prior to the silo reaching capacity**. Any overfilling of the silo resulting in failure of the abatement system, or visible emissions in excess of the requirements of subsection(1)(D) of this standard permit, must be documented and reported following the requirements of 30 TAC §§ 101.201 or 101.211, as appropriate. (K) Fabric filters and collection systems shall meet all of the following requirements: (i) all fabric filter systems shall be maintained and operated properly with no tears or leaks; (ii) **before July 10, 2007 all drum dryer filter systems shall meet at least a front half outlet grain loading of 0.02 grains per dry standard cubic foot (gr/dscf) and a combined (front half and back half) total outlet grain loading of 0.04 gr/dscf;** **(iii) on and after July 10, 2007 all drum dryer filter systems shall meet at least a front half outlet grain loading of 0.01 grains per dry standard cubic foot (gr/dscf) and a combined (front half and back half) total outlet grain loading of 0.04 gr/dscf;** and (iv) **lime/mineral bulk storage silo(s) not vented to the drum dryer system shall vent to a fabric filter system designed to meet at least 0.01 outlet grain loading (combined front half and back half).** (L) Except for those periods described in 30 TAC §§ 101.201 and 101.211**, opacity of emissions from the lime silo fabric filter baghouse stack and/or the drum dryer stack shall not exceed 5 percent averaged over a six-minute period**, and according to EPA TM 9. (N) Fuel for dryers and hot oil heaters shall be either: (i) **pipeline sweet natural gas as defined in the 30 TAC Chapter 101, General Air Quality Rules, containing no more than 5 grains total sulfur and 0.2 grain hydrogen sulfide per 100 dscf;** **(ii) liquid petroleum gas;** **(iii) diesel fuel with a maximum sulfur content of 0.6 percent by weight;** **(iv) first-run No. 2 fuel oil with a maximum sulfur content of 0.6 percent by weight;** **(v) first-run No. 4 fuel oil with a maximum sulfur content of 0.6 percent by weight; or** **(vi) reclaimed industrial oil with a maximum sulfur content of 0.6 percent by weight**. Reclaimed industrial oil shall meet all requirements specified in 40 CFR Part 279, Standards for the Management of Used Oil, and not contain more than a specific amounts of the O) The maximum mix temperature, at the discharge point of the drum, shall not exceed 325□ F except: (i) when a PG binder requires a higher mix temperature, in which case the maximum mix temperature shall not exceed 350 F; or (ii) when crumb rubber mix, produced in compliance with section (5) of this standard permit, requires a higher temperature, in which case the maximum mix temperature shall not exceed 375 F; or (iii) during periods of start-up or shutdown, not surpassing 20 minutes. (P) The following materials, added at the plant at no more than the maximum concentration, are authorized by this standard permit Description — Maximum Concentration Hydrated Lime, Portland Cement, or Fly Ash — Not Applicable Liquid Amine Antistrip Agents — 2% by weight of liquid asphalt in the mix

Agency	Preliminary Identified Affected Rules	Requirements
		Styrene-Butadiene-Styrene 10% by weight of liquid asphalt in the mix Styrene-Butadiene Rubberized Latex 6% by weight of liquid asphalt in the mix RAP 50% displacement of aggregate (Q) Asphalt release agents that do not emit VOCs at ambient temperature, such as vegetable oil or surfactants, may be used. (R) **The owner or operator shall not operate more than one truck load out point at any time.** (S) **The hot mix asphalt plant, and all its associated facilities (silos, conveyors, screens, RAP crushers and equipment), shall be located a minimum distance to the property line. This minimum property line distance is determined by utilizing the following table (Attachment A).** If no site-specific data is available, a 0.5 volatility factor (-0.5) shall be used. (T) As an alternative to the distance requirements in (1)(S) of this a standard permit, a hot mix asphalt plant that restricts hours of operation of the truck load out to the period of time between one hour after sunrise and one hour before sunset and mix production and silo filling at the plant to a period of time between sunrise and one hour before sunset, the minimum distance to the property line shall be determined by using the following table (Attachment B). If no site-specific data is available, a 0.5 volatility factor (-0.5) should be used. (V) **The hot mix asphalt plant and all associated facilities shall be located at least 550 ft. from any concrete batch plant, or rock crusher located on the same site. Additionally, any hot mix asphalt plant and all associated facilities shall be located at least 1300 ft. from any other hot mix asphalt plant located on the same site. If either of these distances cannot be met, then the hot mix asphalt plant authorized under this standard permit shall not operate at the same time as the concrete batch plant, rock crusher, or other hot mix asphalt plant.** (4) <u>Requirements Specific to Permanent Hot Mix Asphalt Plants</u> (A) This standard permit authorizes not more than the following facilities (as defined in 30 TAC Chapter 116.10(4)): (i) cold feed bin(s); (ii) transfer conveyor(s); (iii) aggregate screen(s); (iv) a counter/parallel flow drum; (v) a RAP feed bin; (vi) a RAP conveyor; (vii) 90,000 gallons or less total asphalt binder storage in no more than three tanks with associated hot oil heaters; (viii) three, hot mix surge bin/storage silos; (ix) 90,000 gallons or less total fuel oil storage in no more than three tanks; (x) a liquid anti-strip tank (xi) a RAP breaker/crusher; (xii) a release agent application facility

Agency	Preliminary Identified Affected Rules	Requirements
		(xiii) a lime storage silo; (xiv) a mineral filler silo; and (xv) a fines storage silo. Equipment that is not a source of emissions does not require authorization.
Industrial Stack and Non-stack: Nonmetallic Mineral Processing		
Maricopa County	316 Nonmetallic mineral mining & processing – Section 301 Limitations	No person shall discharge or cause or allow to be discharged into the ambient air: 301.1 Stack emissions exceeding 7% opacity and containing more than 0.02 gr/dscf of PM. **301.2 Fugitive dust emissions from any transfer point on a conveying system exceeding 7% opacity**. 301.3 Fugitive dust emissions exceeding 15% opacity from any crusher. 301.4 Fugitive dust emissions exceeding 10% opacity from any affected operation or process sources, excluding truck dumping directly into any screening operation, feed hopper or crusher. 301.5 Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper or crusher.
Clark County, Nevada	AQR Section 34 New Performance Standards for Nonmetallic Mineral Mining and Processing 34.2 Performance Standard	34.2.1 No owner or operator shall cause to be discharged into the atmosphere, from any grinding mill, screening equipment, bucket conveyor, belt conveyor, belt conveyor transfer point, bagging equipment, storage bin, enclosed truck and rail car loading station, any fugitive dust which exhibits greater than ten percent (10%) OPACITY for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. 34.2.2 No owner or operator shall cause to be discharged into the atmosphere from any crusher fugitive dust which exhibits greater than fifteen percent (15%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. 34.2.3 No owner or operator shall cause to be discharged into the atmosphere emissions from a stack or building vent which exhibits greater than seven percent (7%) opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period.
SCAQMD	BACT Guidelines for non-major polluting facilities	<u>Non-metallic mineral processing – except rock or aggregate</u> • baghouse for enclosed operations; water fog spray for open operations. This category includes conveying, size reduction, and classification. <u>Rock – aggregate processing</u> • baghouse venting jaw crushers, cone crushers, and material transfer points adjacent to and after these items; and water sprays at other material transfer points.
Bay Area Air Quality Management District	Best Available Control Technology (BACT) Guideline for rock and aggregate processing http://www.baaqmd.gov/pmt/bactworkbook/defa	1. Technologically feasible/cost effective - **Enclosure of jaw/cone crushers, screens, conveyors, and all material transfer points and vent to baghouse(s) w/ <0.01 gr/dscf; Water spray w/ chemical suppressants of storage piles and site road surfaces.** 2. Achieved in practice - **Enclosure of jaw/cone crushers, screens, and associated material transfer points and vent to baghouse(s) w/ <0.01 gr/dscf; Water spray of other transfer points, conveyors, storage piles, and site road surfaces**

Agency	Preliminary Identified Affected Rules	Requirements
	ult.htm	
TCEQ	February 2002, Standard Permit for Rock Crushing Plants, BACT Analysis	1. A minimum of 70% reduction of fugitive dust emissions from the crushing, conveying, and stockpiling of aggregate material (sufficient application of water by sprays or fog rings). 2. A minimum of 70% reduction of fugitive dust emissions from all vibrating screens.
TCEQ	Air Quality Standard Permit for Temporary Rock Crushers, February 2002	This air quality standard permit authorizes crushing operations which meet all of the conditions listed in paragraph (1) and paragraph (2) for Tier I or paragraph (3) for Tier II. (1) General Requirements (A) For the purposes of this standard permit, a site is defined as one or more contiguous or adjacent properties which are under common control of the same person (or persons under common control). (B) When crushing concrete, the crusher and all associated sources (screens, transfer points on belt conveyors, material storage or feed bins, work areas that are only associated with the facility, or stockpiles**) shall be located at least 440 yards from any structure used as a single family or multifamily residence, school, or place of worship**. (C All screen sides shall be enclosed and all conveyors shall be covered with a half-moon or equivalent enclosure that covers the top of the conveyor to minimize emissions. (D) Except for those periods described in 30 TAC §§ 101.6 and 101.7, **no visible fugitive emissions shall leave the property from the crusher, associated sources, and in-plant roads associated only with the facility**. **Visible emissions shall be determined by a standard of no visible emissions exceeding 30 seconds in duration in any six-minute period as determined using EPA Test Method 22.** (5) Except for those periods described in 30 TAC §§ 101.6 and 101.7, opacity of emissions from any transfer point on belt conveyors or any screen shall not exceed 10 percent and from any crusher shall not exceed 15 percent, averaged over a six-minute period, and according to EPA TM 9. (F) Permanently mounted spray bars shall be installed at the inlet and outlet of all crushers, at all shaker screens, and at all material transfer points and used as necessary to maintain compliance with all commission regulations. (J) The crusher shall be equipped with a runtime meter. (O) **The rock crusher and all associated facilities operating under this standard permit shall neither locate nor operate on the same site as any other rock crusher.** (2) A Tier I crusher (portable rock crusher with a throughput of 125 tph or less) shall comply with paragraph (1) of this standard permit and all of the following: (A) The crusher shall not be located at a quarry or mine. C) The **crusher and all associated sources shall be located no less than 200 ft. from the nearest property line.** (D) The **equipment authorized under this paragraph shall be limited to one primary crusher, two conveyors, and two screens.**

Agency	Preliminary Identified Affected Rules	Requirements
		(E) The **rock crusher and all associated sources operating under this standard permit shall neither locate nor operate on the same site as any concrete batch plant or asphalt batch plant.** (F) **The crusher and associated sources (excluding stockpiles) shall not operate for more than 360 hours or 45 non-consecutive calendar days on site, whichever occurs first**. The owner or operator shall remove the crusher and associated equipment from the site within 24 hours of ceasing operation. The 24 hours allotted for the removal shall not be used as additional operational time above the 360 hours or 45 non-consecutive calendar days. (G) If the time periods listed in paragraph 2(F) have not been exhausted during any rolling 365 day period, the operator may return to the authorized site and operate for the remaining balance of time for that site. To return to the site, the operator shall notify the commission as described in paragraph 2(H). Once the operating hours (360) or calendar days (45) for the site have been exhausted and the site has been vacated, the owner or operator shall not use a standard permit to locate any rock crusher on the site for at least 365 days. (3) A Tier II crusher (portable rock crushers with a throughput of 250 tph or less) shall comply with paragraph (1) of this standard permit and all of the following: (B) **The crushers and all associated sources shall be located no less than 300 ft. from the nearest property line**. (C **The crushers and associated sources operating under this standard permit shall be located at least 550 ft. from any concrete batch plant or asphalt batch plant**. If this distance cannot be met, then the crusher authorized under this standard permit shall not operate at the same time as the concrete batch plant or asphalt batch plant. (D) The **equipment authorized under this paragraph shall be limited to one primary crusher, one secondary crusher, two screens and any associated conveyors**. (E) The **rock crushers and associated sources (excluding stockpiles) shall not operate for more than 1080 hours or 180 non-consecutive calendar days on site, whichever occurs first**.
Oklahoma DEQ	General Permit for Minor Source Nonmetallic Mineral Processing Facilities	• Facility-Wide Emissions Cap and Emissions Limitations - not to equal or exceed 100 TPY of any regulated pollutant, 10 TPY of any single HAP, or 25 TPY of all HAPs. • Facilities located in nonattainment areas are not eligible for general permit • Hourly PM Limits • Concentration Limitations for Engines • IC engines operated under this permit shall be fueled only with pipeline-quality natural gas or diesel with less than 4,000 ppm sulfur content. • 20% opacity limit • Reasonable precautions or measures to minimize fugitive dust emissions from the handling, transporting or disposition of any substance or material • Permittee shall not cause or permit the discharge of any visible fugitive dust emissions beyond the permittee's property line in such a manner as to damage or to interfere with the use of adjacent properties, or to cause or contribute to the violation of ambient air quality standards.

Agency	Preliminary Identified Affected Rules	Requirements
		• Fugitive road dust shall be controlled as needed to maintain by applying water and/or chemical spray to the road. • Water/chemical spray dust suppression systems on nonmetallic minerals processing equipment and transfer points must be operated on either a continuous or intermittent basis, depending on whether processed materials contain sufficient moisture such that operation of the plant does not cause a violation of applicable limitations.
INDUSTRIAL STACK AND NON-STACK: GROUND LEVEL CONCENTRATIONS		
TCEQ	Rule §111.155. Ground Level Concentrations, Adopted June 16, 1989 Effective July 18, 1989	**No person may cause, suffer, allow, or permit emissions of particulate matter from a source or sources operated on a property or from multiple sources operated on contiguous properties to exceed any of the following net ground level concentrations:** **(1) Two hundred micrograms per cubic meter of air sampled, averaged over any three consecutive hours.** **(2) Four hundred micrograms per cubic meter of air sampled, averaged over any one-hour period.**
AGRICULTURAL OPERATIONS , CROPLAND AND NON-CROPLAND		
Arizona Department of Environmental Quality	AAC R18-2-610 and 611	**Commercial farmers in the Maricopa PM10 nonattainment area must implement at least one best management practice for each of the following categories:** **1) Cropland** **2) Noncropland** **3) Tillage and harvest activities**

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Appendix D

RESOLUTIONS OF COMMITMENTS FOR
CONTROL MEASURE 04-DC-01

Resolutions for Commitment to Control Measure 04-DC-1

City/Agency	ADEQ DTS #	Resolution		Comments
		Number	Date Signed	
Apache Junction	97679	04-24	09/24/2004	
Avondale		2448-04	09/20/2004	
Buckeye	103278	58-04	11/16/2004	
Chandler	99414	3782	10/14/2004	
El Mirage	103921	R04-10-54	10/28/2004	
Fountain Hills	104652	2004-63	11/18/2004	
Gilbert	105884	2575	03/29/2005	
Glendale	97683	3796	09/14/2004	
Goodyear	99306	04-941	10/25/2004	
Mesa	97957	8344	10/04/2004	
Paradise Valley	98132	1084	09/23/2004	
Peoria	98260	04-235	10/12/2004	
Phoenix	93127	21114	06/16/2004	
Queen Creek				Has older Ordinances (from ’97 & ’99)
Scottsdale	101638	6588	12/06/2004	
Surprise	97856	04-163	09/23/2004	
Tempe	98259	2004.84	09/30/2004	
Tolleson	97759	947	09/28/2004	
Youngtown	103438	05-01	01/20/2005	Has Dust Control Ordinance (Chapter 8.28)
MAG				Developed model resolution package
Maricopa Cty	104167	C-85-05-005-0-00	01/19/2005	Resolution also Includes: Improve clarity and enforceability of Rule 310.01 Strengthening of Rule 316 Improve compliance with Rule 310
ADOT	97728	Not numbered	09/17/2004	04-DC-1

104167

Maricopa County
Air Quality Department

Joy Rich, Director
1001 North Central, Ste 500
Phoenix, Arizona 85004-1950
Phone: (602) 506-6747
Fax: (602) 506-7303

February 10, 2005

Ms. Nancy Wrona
Air Quality Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Dear Nancy:

Enclosed is a copy of the Maricopa County Air Quality Department's resolution and commitments to implement additional measures for the Revised PM10 State Implementation Plan for the Salt River Area. The resolution and commitments were passed and adopted by the Board of Supervisors of Maricopa County, Arizona on January 19, 2005.

If you have any questions regarding the enclosed resolution, please contact me at (602) 506-6705.

Sincerely,

Jo Crumbaker

Jo Crumbaker
Air Quality Planning and Analysis Manager

Attachments

RESOLUTION TO IMPLEMENT ADDITIONAL MEASURES FOR THE MARICOPA COUNTY, ARIZONA SERIOUS PM-10 NONATTAINMENT AREA

C-85-05-005-0-00

WHEREAS, as the Arizona Revised Statutes grants authority to formulate policies, plans and programs to implement Title 49 for protection of the environment to the Arizona Department of Environmental Quality and its Director; and

WHEREAS, Maricopa County is designated as a Serious Nonattainment Area for particulate matter according to the Clean Air Act and has been granted an extension of the attainment date to 2006; and

WHEREAS, the Serious Area Particulate Plan for PM-10 with an approved extension request is required to include Best Available Control Measures and Most Stringent Measures for significant sources and source categories; and

WHEREAS, ADEQ's goal is to submit a State Implementation Plan (SIP) revision to address the inadequacy identified by the U.S. Environmental Protection Agency (EPA) for the Maricopa County, Serious PM-10 nonattainment Area at the Salt River monitor; and

WHEREAS, revision of existing rules, development of new rules, and additional fugitive dust control program inspection, enforcement and support personnel are required by the EPA to finalize action on the Revised PM_{10} State Implementation Plan for the Salt River Area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measures as provided in statute, ordinance, or rule; a program for enforcement of the measure; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF SUPERVISORS, MARICOPA COUNTY (BOARD) as follows:

SECTION 1. That the BOARD agrees to proceed with a good faith effort to implement the measures identified in Exhibit A (Measures), which is part of this resolution.

SECTION 2. That the BOARD commits to implement the Measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, Maricopa County agrees to consider modifications of the funding or schedules for implementation actions, if necessary. Maricopa County agrees to submit any modification to the commitments in Exhibit A to EPA for approval as a SIP revision.

PASSED AND ADOPTED by the Board of Supervisors of Maricopa County, Arizona, this 19th day of January 2005.

Max W. Wilson

Max W. Wilson, Chairman

ATTEST:

Clerk of the Board

EXHIBIT A (Measures)

Maricopa County Air Quality Department Commitments for the Revised PM_{10} State Implementation Plan for the Salt River Area

MEASURE 1

Measure Title: Improve clarity and enforceability of Rule 310.01 (Fugitive Dust from Open Areas, Vacant Lots, Unpaved Parking Lots, and Unpaved Roadways) and develop a strategy for proactive vacant lot/open area and unpaved parking lot inspections.

Measure Description: Evaluate and revise Rule 310.01 to improve the clarity and enforceability, and develop a strategy for proactive vacant lot/open area and unpaved parking lot inspections.

Authority for Implementation: The Maricopa County Board of Supervisors is authorized by A.R.S. § 49-479 to adopt rules for air pollution control and by A.R.S. § 49-480 to establish, administer and enforce a program for air quality permits. The Board adopted rules establishing an air quality permit program and pursuant to A.R.S. § 49-473, designated the Air Quality Department to issue permits and administer and enforce the permit program. By operation of A.R.S. § 49-471, the executive head of the department designated under A.R.S. § 49-473 serves as the Air Pollution Control Officer. The Air Pollution Control Officer is specifically authorized to take the enforcement actions set forth in A.R.S. §§ 49-502, 49-511, 49-512 and 49-513.

Implementation Schedule:

Rule Revisions:

May — Nov. 2004	Draft rule revisions and conduct stakeholder workshops
Dec.2004	Oral proceeding on rule revisions
Feb. 2005	Board consideration of rule revisions.

Inspection Priority Plan:

Draft Jan. 2005	Develop an inspection priority plan that will be incorporated into standard operating procedures (SOP). The plan and SOP will be based on at least five of the following criteria: Salt River Study Area [approximately, Van Buren Street on the north, Baseline Road on the south, 59th Avenue on the west and 10th Street on the east]; parcel soil type(s); parcel size; geographic location of the parcel; and citizen complaints. The first priority will be given to vacant lots/open areas, including alluvial channels, located in the Salt River Study Area. Those lots will be prioritized based on the remaining criteria. Once those inspections are completed, the Department will begin inspections in the remainder of the PM_{10} nonattainment area.
March 2005	Submit final inspection priority plan to EPA.

Proactive Program:

Sept. 2004	The Department conducted proactive inspections in a portion of the Salt River Study Area [specifically, in the area bound by 35th Avenue on the east, 55th Avenue on the west, Lower Buckeye Road on the south and Broadway Road on the north] and issued follow up letters. Once the program is fully staffed, Maricopa County estimates that 5,200 vacant lot inspections per year can be completed (approximately 3,100 inspections of vacant parcels $\geq$ 10 acres; and 2,100 inspections of vacant parcels < 10 acres). The program will provide for normal complaint processing as well as Internet based submittals.

July 1, 2005	As part of the Air Quality Department move to Accela's Permit Plus application, a Vacant Lot module will be developed and available to inspectors by July 1, 2005. This development will provide the department a single source for data capture, storage and reporting. All documents, actions and pictures will be digitalized and/or linked to initial activity providing the most availability of information to the most individuals. Data will contain parcel number, owner name, etc., and can generate notifications and reports as required.
Oct. 2006	Complete initial inspections and follow up actions, where necessary, for all vacant lots/open areas, including alluvial channels, located in the Salt River Study Area. Provide periodic follow-up inspections for vacant lots/open areas determined to be out of compliance

Staffing:

April 2005	Hire five (5) inspectors
August 2005	Hire five (5) additional inspectors

Level of Personnel: The Maricopa County Air Quality Department will seek approval to hire ten (10) inspectors to work proactively and directly on Rule 310.01 compliance.

Level of Funding: The Department's annual revenue is anticipated to be approximately $5.8 million. No change in funding is anticipated for rule revisions. Annual costs associated with the proactive vacant lot/open area & unpaved parking lot inspection and enforcement plan are estimated to be an additional $512,000.

Enforcement Program:

These requirements are administered through a visual inspection program which includes stabilization limitation requirements. Current enforcement of the vacant lot/open area section of Rule 310.01 starts with a letter to the parcel owner. Revisions to Rule 310.01 include a requirement for vacant lot owners/operators to submit, in writing, to the Department a description of the control measure(s) to be implemented within 30 days. If no contact has been made, no control measures have been instituted, or stabilization has not been established within 60 days of receipt then a Compliance Status Notification is issued to the parcel owner. The owner has 14 days to comply and/or contact the Department before a Notice of Violation is issued.

The Department's enforcement options include orders of abatement, civil actions for injunctive relief or civil penalties, and filing a class 1 misdemeanor citation. The actual process is further described in the Department's Air Quality Violation Reporting and Enforcement Policy.

Monitoring Program:

The Department will track the number of Rule 310.01 inspections, number and type of enforcement actions, amount of penalties assessed, amount of penalties collected, compliance with the 24-hour and annual PM-10 standard and number of educational opportunities provided. In 2006, the Department will perform a rule effectiveness study to evaluate this program.

MEASURE 2

Measure Title: Strengthening of Rule 316 (Nonmetallic Mineral Processing) to meet best available control measure (BACM) and most stringent measure (MSM) requirements.

Measure Description: Revise Rule 316 to include BACM and MSM requirements identified and determined to be feasible for trackout; unpaved haul and access roads; storage piles and material handling; concrete batch plants; and asphalt batch plants. Increase inspection frequency from one (1) every two year to four (4) times per year for concrete plants, asphaltic concrete plants, and nonmetallic mineral processing plants.

Authority for Implementation: The Maricopa County Board of Supervisors is authorized by A.R.S. § 49-479 to adopt rules for air pollution control and by A.R.S. § 49-480 to establish, administer and enforce a program for air quality permits. The Board adopted rules establishing an air quality permit program and pursuant to A.R.S. § 49-473, designated the Air Quality Department to issue permits and administer and enforce the permit program. By operation of A.R.S. § 49-471, the executive head of the department designated under A.R.S. § 49-473 serves as the Air Pollution Control Officer. The Air Pollution Control Officer is specifically authorized to take the enforcement actions set forth in A.R.S. §§ 49-502, 49-511, 49-512 and 49-513.

Implementation Schedule:

May 2004 - January 2005	Draft rule revisions and conduct stakeholder workshops
March 2005	Oral proceeding on rule revisions
April-May 2005	Board consideration of rule revisions.

Level of Personnel: The Maricopa County Air Quality Department currently has 9 inspectors, 2 supervisors and 4 technical staff to inspect and determine compliance at stationary sources.

Level of Funding: The Department's annual revenue for the air quality program is approximately $ 5.8 million. No change in funding is anticipated for rule revisions; however, the Department will re-evaluate the workload for nonmetallic mineral processing facilities with the increased inspection frequency [four (4) times per year beginning July 1, 2005] and propose an increase in fees, if necessary, by July 1, 2005.

Enforcement Program: These requirements are administered through a permit program, which includes: review of permits, inspection of facilities, source testing of equipment, and review of records and activities. The Department's enforcement options include: orders of abatement, civil actions for injunctive relief or civil penalties, and filing a class 1 misdemeanor citation.

Monitoring Program: The Department will track the number of inspections, notice of violations, other enforcement actions, and the amount of penalties for Rule 316 violations.

MEASURE 3

Measure Title: Better enforcement of Rule 310 (Fugitive Dust)

Measure Description: Achieve improved compliance with Rule 310 through the provision of additional inspection, enforcement and support personnel. The commitment provides for additional resources for enforcement of Rule 310, including the task of reviewing dust control plans for consistency with the Department's Guidance for Application for Dust Control/Demolition/Weed Abatement Permit

Authority for Implementation: The Maricopa County Board of Supervisors is authorized by A.R.S. § 49-479 to adopt rules for air pollution control and by A.R.S. § 49-480 to establish, administer and enforce a program for air quality permits. The Board adopted rules establishing an air quality permit program and pursuant to A.R.S. § 49-473, designated the Air Quality Department to issue permits and administer and enforce the permit program. By operation of A.R.S. § 49-471, the executive head of the department designated under A.R.S. § 49-473 serves as the Air Pollution Control Officer. The Air Pollution Control Officer is specifically authorized to take the enforcement actions set forth in A.R.S. §§ 49-502, 49-511, 49-512 and 49-513.

Implementation Schedule:

Manpower:

August 2004	Maricopa County Board of Supervisors approved interim funding to hire 19 air quality inspection and support staff to improve the Department's ability to work proactively and directly on compliance and enforcement of the earthmoving fugitive dust program.
Jan. 2005	Complete a user fee analysis and have new fees reviewed and considered by the Board of Supervisors to be effective no later than July 1, 2005, to permanently fund the 19 positions.
Dec. 2004	Hired 3 inspectors for Rule 310 compliance and enforcement.
Feb. 2005	Hire 1 inspectors for Rule 310 compliance and enforcement, 2 supervisors and 2 support staff.
March 2005	Hire 4 inspectors for Rule 310 compliance and enforcement.
June 2005	Hire 4 inspectors for Rule 310 compliance and enforcement, 2 supervisors and 1 support staff.

Level of Personnel:

The Maricopa County Air Quality Department currently has eight (8) inspectors, one (1) supervisor, and two (2) enforcement officers to work proactively and directly on the Rule 310 fugitive dust program. In August 2004, the Maricopa County Board of Supervisors approved interim funding to hire 19 air quality inspection and support staff (12 inspectors, 4 supervisors, and 3 support staff) to improve the Department's ability to work proactively and directly on compliance and enforcement of the earthmoving fugitive dust program. The Department will complete a user fee analysis and have new fees reviewed and considered by the Board of Supervisors to be effective no later than July 1, 2005, to permanently fund the 19 positions.

Jan. 2005	Complete user fee analysis for the dust control earthmoving program based on 3-5 inspections per year for earthmoving permitted sites $\geq$ 10 acres and 1 inspection per year for sites < 10 acres.

May 2005 Board consideration of proposed fees.

Level of Funding:

The Maricopa County Air Quality Department's annual revenue is anticipated to be approximately $ 5.8 million. The current annual earth moving permit fee revenue is anticipated to be approximately $ 2.4 million.

If necessary, resources associated with Rule 310 will come from increased earthmoving permit fees. The Department will complete a fee analysis to determine the cost to administer the earthmoving permit program and will revise the permit fees accordingly. The schedule for completing the user fee analysis is detailed above.

Enforcement Program:

Rule 310 requirements are administered through a visual inspection program and a permit program which includes review of permit, inspection of facilities, performance of compliance test methods and review of records and activities.

The Department's enforcement options include orders of abatement, civil actions for injunctive relief or civil penalties, and filing a class 1 misdemeanor citation. The actual process is further described in the Department's Air Quality Violation Reporting and Enforcement Policy.

Monitoring Program:

The Department tracks the number of earthmoving permits, Rule 310 inspections, number and type of enforcement actions, amount of penalties assessed, amount of penalties collected, compliance with the 24-hour and annual PM_{10} standard, and number of education opportunities provided. The Department will continue to track this information and will perform a rule effectiveness study in 2006 to evaluate this program.

MEASURE 4

Measure Title: Develop and adopt a rule regulating PM_{10} emissions from kilns at brick and structural clay product manufacturing facilities to meet best available control measure (BACM) and most stringent measure (MSM) requirements.

Measure Description: The Maricopa County Air Quality Department will develop and adopt a rule regulating PM_{10} emissions from kilns at clay ceramic manufacturing facilities, and brick and structural clay product manufacturing facilities to include BACM and MSM requirements identified and determined to be feasible.

Authority for Implementation: The Maricopa County Board of Supervisors is authorized by A.R.S. § 49-479 to adopt rules for air pollution control and by A.R.S. § 49-480 to establish, administer and enforce a program for air quality permits. The Board adopted rules establishing an air quality permit program and pursuant to A.R.S. § 49-473, designated the Air Quality Department to issue permits and administer and enforce the permit program. By operation of A.R.S. § 49-471, the executive head of the department designated under A.R.S. § 49-473 serves as the Air Pollution Control Officer. The Air Pollution Control Officer is specifically authorized to take the enforcement actions set forth in A.R.S. §§ 49-502, 49-511, 49-512 and 49-513.

Implementation Schedule:

August – Sept. 2004	Draft rule revisions and conduct stakeholder workshops
December 2004	Oral proceedings on rule revisions
March 2005	Board consideration of rule revisions.

Level of Personnel: The Department currently has 9 inspectors, 2 supervisors and 4 technical staff to inspect and determine compliance at stationary sources.

Level of Funding: The Department's annual revenue for the air quality program is approximately $ 5.8 million. No change in funding is anticipated for rule revisions.

Enforcement Program: These requirements are administered through a permit program which includes review of permits, inspection of facilities, source testing of equipment and review of records and activities. The Department's enforcement options include orders of abatement, civil actions for injunctive relief or civil penalties, and filing a class 1 misdemeanor citation.

Monitoring Program: The Department will track the number of inspections, notice of violations, other enforcement actions, and the amount of penalties assessed and collected for violations at brick and structural clay product manufacturing facilities.

MEASURE 5

Measure Title: Targeted paved road dust emissions control measure

Measure Description: The Maricopa County Department of Transportation (MCDOT) will develop and follow a protocol to reduce re-entrained dust emissions from paved roads that typically experience a high level of soil deposition.

The protocol:

- Arterial and collector targeted "high dust" roads will be identified through routine field supervisor inspections of roadways. Identified roadways will be swept at least 3 times a month, double the normal frequency.
- Roads have previously been swept with conventional sweepers and a few prototype PM-10 efficient sweepers (pre-dating SCAQMD certification). All roads will be swept with certified PM-10 efficient sweepers by February 2, 2005.
- All MCDOT field inspectors and supervisors will report trackout associated with facilities and activities regulated by Maricopa County by notifying the Maricopa County Air Quality Department when rule violations are observed;
- This protocol will be reevaluated annually to ascertain its effectiveness. An updated list of roads that are swept with increased frequency will be submitted to the Maricopa County Air Quality Department annually.

Authority for Implementation:

- Arizona Revised Statutes (A.R.S.) § 11-251 (General Powers of Board of Supervisors)
- A.R.S. § 28-6705 (Public road and street maintenance)
- A.R.S. § 28-6708 (Jurisdiction of streets; unincorporated town)

Implementation Schedule:

September 2004	Implement field supervisor reporting of observed trackout violations
February 2005	Implement targeted paved road dust emissions control measure identified in the protocol.

Level of Personnel and Funding:

Funding is allocated through the annual budget process. No change in existing funding is anticipated.

Enforcement Program:

MCDOT will oversee the implementation of this measure. In addition, ARS § 49-406 J. provides an approach for assurances that State and local committed measures will be adequately implemented.

Monitoring Program:

An updated list of roads that are swept with increased frequency will be submitted to the Maricopa County Air Quality Department annually.

97728

Arizona Department of Transportation

Transportation Planning Division

206 South Seventeenth Avenue Phoenix, Arizona 85007-3213

Janet Napolitano
Governor

Victor M. Mendez
Director

Dale Buskirk
Division Director

September 28, 2004

Ms. Nancy Wrona
Air Quality Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Dear Nancy:

The purpose of this letter is to submit the Arizona Department of Transportation's commitment and the Arizona Transportation Board adopted resolution to implement measures to reduce reentrained dust emissions from targeted paved roads for the Maricopa County PM10 nonattainment area. Also included is the approach that ADOT will use to implement the commitment by February 2, 2005.

This submittal meets the conditions and requirements outlined in the ADEQ, Revised PM10 State Implementation Plan for the Salt River Area, August 2004. Please contact me at (602) 712-7487 if you have any questions or need further clarification.

Sincerely,

Beverly T. Chenausky
Air Quality Policy Branch Supervisor

Attachments

cc: Richard Polito, MCESD

RESOLUTION TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the Maricopa County nonattainment has been classified as a Serious Area for PM -10 particulate matter; and

WHEREAS, the Maricopa County non attainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE STATE TRANSPORTATION BOARD as follows:

SECTION 1. That the Arizona Department of Transportation agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Arizona Department of Transportation commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the Arizona Department of Transportation agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the State Transportation Board of Arizona this 17th Day of September 2004.

Bill Jeffers

Bill Jeffers, Chairman
Arizona Transportation Board

ATTEST:

Victor M. Mendez

VICTOR M. MENDEZ, Director
Arizona Department of Transportation

EXHIBIT A

Measure Title: 04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description: The Arizona Department of Transportation has developed a protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The protocol:

- Identifies targeted arterial and collector roadways and assign sweeping frequencies with PM10-efficient sweepers (or conventional sweepers if only these are available) or other control measures that would reduce the dust loading for each roadway;

- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000;

- Addresses trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and

- Provides for the annual reevaluation of the protocol.

Responsible Agency and Authority for Implementation: Pursuant to A.R.S. 28-104, ADOT has the responsibility for maintenance of facilities on the State Highway System.

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) by September 30, 2004 and will be implemented by February 2, 2005.

Level of Personnel and Funding Allocated for Implementation: The Phoenix Maintenance District is responsible for additional sweeping that may be required for implementing this protocol and the Phoenix Construction District is responsible for addressing the trackout provisions from construction, for this protocol. The funding allocated for FY04/05 is estimated at $350,000 to implement the protocol and for the purchasing and operation of two additional certified PM10 sweepers. ADOT already has two sweepers in operation now that will aide in implementing the protocol.

Enforcement Program: AR.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the non-attainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted periodically by ADOT. ADOT will submit progress reports or any additional records of implementation to MCESD or ADEQ, upon request.

ARIZONA DEPARTMENT OF TRANSPORTATION
PLAN TO REDUCE REENTRAINED DUST EMISIONS
FROM TARGETED PAVED ROADS

- INTRODUCTION

This Plan defines the Arizona Department of Transportation's approach to addressing dust emissions from paved roads that typically experience a high level of soil and dust depositions. This Plan will be used as protocol for identifying arterial and collector roadways segments and implementing the requirements outlined in the ADEQ, Revised PM-10 State Implementation Plan for the Salt River Area, August 2004.

This plan will be used in conjunction with current commitments and frequent sweeping program, with the purchasing of certified PM10 sweepers and additional controls described in this plan, this Plan will be an enhancement over existing commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM10 for the Maricopa County Nonattainment Area, February 2000. The Plan elements are listed below and discussed in detail in the following sections.

- Criteria for Targeting Arterial and Collector Roadways
- Control Measures to Reduce Dust Loading on Targeted Roadways
- Reporting and Reevaluation of Procedure

- CRITERIA FOR TARGETING ARTERIAL AND COLLECTOR ROADWAYS

ADOT will use current Functional Classification of Roadways to identify arterials and collectors within the Maricopa County Nonattainment Area; targeted roadways will then be ranked and identified using the following factors.

High PM10 Area: Areas with higher ambient levels of PM10 as identified in ADEQ Annual Air Quality Report through monitor site readings will have higher potential of contributing to trackout on the roadways.

Traffic Volume: Roadways with greater traffic volume have a higher potential for dust emissions being reeintrained onto the air in situations where dirt is present on roadway.

Land Use: Roadways with evidence of dirt or soil deposited from facilities and activities, or unstabilized vacant land near the roadway may have a higher potential for reeintrained dust emissions. In the Salt River Area "dirty streets" were assumed to be those primary streets adjacent to or within one-quarter mile of an industrial, construction, or agricultural property.

Access Points: Roadways with uncontrolled or unpaved access points have higher potential of contributing to trackout on the roadways.

Sweeping Frequency: Roadways with less frequent sweeping schedules may have a higher potential of contributing to reeintrained dust emissions, if dust-generating sources are nearby.

- CONTROL MEASURES TO REDUCE DUST ON TARGETED ROADWAYS

Once a Roadway has been identified base on the ranking factors mentioned prior, ADOT will put into place one or more of the following control measures as necessary to reduce dust loading.

  - Increasing street sweeping frequency with certified PM10 efficient street sweeper, as available.

  - If properties or right of way is owned by ADOT and such properties are near the identified roadway, ADOT will ensure that access is restricted, and land is stabilized in accordance to County rules.

  - Educate staff and others parties responsible for maintaining such roadways of best management practices to prevent trackout and the reporting requirement to Maricopa County when dust or trackout is created by faculties and activities regulated under County rules.

- REPORTING AND REEVALUATION OF PROCEDURE

ADOT will keep records of site visits and document any corrective action made and make such records available to ADEQ and Maricopa County, upon request. ADOT has two sweepers with NETWORK card installed that will continuously track the location and sweeping use on ADOT roadways; this data could be used for reporting requirements in this protocol.

If the above mitigation strategies identified do not reduce dust loading, ADOT will consider other road improvements, if such improvements are proven to reduce dust loading on the roadway. ADOT will periodically reevaluate the protocol and the targeted roadways to determine if conditions require modifications or if conditions support additional or discontinued dust control.

ADOT Construction Manual

Select a Section To View / Print / Search:

Select a Chapter and View the Table of Contents	Summary of Changes	Sections	References	Forms	Search by Chapter
Ch 1: General Provision	yes	100; 101; 102; 103; 104; 105; 106; 107; 108; 109	Chapter 1 References	Chapter 1 Forms	**1**
Ch 2: Grading	yes	200; 201; 202; 203; 204; 205; 206; 207; 208	Chapter 2 References	Chapter 2 Forms	**2**
Ch 3: Subgrade, Subbases, and Bases	no	300; 301; 302; 303; 304; 305; 306; 307	Chapter 3 References	Chapter 3 Forms	**3**
Ch 4: Surface Treatments and Pavements	yes	401; 402; 404; 405; Asphaltic Concrete Section; 406; 407; 408; 409; 410; 411; 413 ; 414; 416; 417	Chapter 4 References	Chapter 4 Forms	**4**
Ch 5: Drainage Facilities	no	501; 502; 503; 504; 505	Chapter 5 References	Chapter 5 Forms	**5**
Ch 6: Structure	no	601: 602: 603: 604: 605: 606: 607: 608: 609: 610	Chapter 6 References	Chapter 6 Forms	**6**
Ch 7: Traffic Control Facilities	yes	701; 702; 703; 704; 705; 706; 730; 731; 732; 733; 734; 735; 736; 737	Chapter 7 References	Chapter 7 Forms	**7**
Ch 8: Roadside Development	no	800; 801; 802; 803; 804; 805; 806; 807; 808; 809; 810	Chapter 8 References	Chapter 8 Forms	**8**
Ch 9: Incidentals	yes	901; 902; 903; 904; 905; 906; 907; 908;909; 910; 911; 912; 913; 915; 916; 917; 922; 925; 926/927; 928; Attachments	Chapter 9 References	Chapter 9 Forms	**9**

The Resident Engineer should review the Special Provisions to see if the traffic control plan, including temporary detours will require approval by Maricopa County, or other agencies in order to met air quality standards. The Special Provisions may also deduct money due the Contractor when portions of the roadway remain closed outside the allowable closure period.

(A) Detours

In some cases the Project Plans will provide a designed detour; in other cases it may be necessary for the Contractor to produce a design. In the latter event, the Contractor prepares a drawing of the detour to a proper scale showing the transition zones, the proposed horizontal and vertical alignment, super elevation, width, base, and surface. The drawing should show proposed signs, striping, barricades, and delineators. The Resident Engineer should submit the design to the Regional Traffic Engineer for review and approval of the traffic aspects of the design.

A complete record (including plans and photographs) must be kept showing all installations and any changes in the detour or traffic control devices. Photographs should be taken in a sequence showing the detour from beginning to end. (Videotaping of the work zone traffic control is an acceptable alternative to photographs.) If possible, all construction personnel should be alerted to the problems involved in the handling of traffic by means of detours. Surprise situations should be avoided because they contribute to accidents. Detours should be drivable at night under varying traffic and weather conditions. The State Highway Patrol (DPS) and local police can often be helpful in locating problem areas.

If it becomes necessary or desirable to use a county road or city street as a detour for an extended period of time, the Resident Engineer should discuss the matter with the appropriate local government official. The Resident Engineer should make certain that there is a complete understanding as to who will pay the cost of maintenance or any reconditioning that may be necessary. The Contractor may need a permit for the detour from the local government. After the permit is obtained, the Contractor should photograph all existing roadway surfaces along the detour route.

(B) Winter Work Suspension

The Resident Engineer should arrange for the district maintenance staff or the responsible superintendent to review the site prior to release of the Contractor for the winter season. This should help in gaining a "meeting of the minds" as to the condition of the roadway at the time when the Contractor is released from responsibility and the work that the maintenance crew needs to perform during the winter period. Where feasible, the ADOT crew should leave the project in a condition as close as possible to that when the suspension started.

See Chapter VII for additional information about traffic control.

104.08 Prevention of Air and Noise Pollution

An environmental impact statement (EIS) or waiver is written for each highway project prior to construction. The document assesses the adverse impacts a project will have on the local surroundings and the environment. Some of the impacts resulting from construction operations may be addressed in the EIS or waiver. The Resident Engineer should review the EIS or waiver if the project is considered to be environmentally sensitive. Note what construction activities, if any, require specific environmental mitigation measures. These measures are usually addressed in the Special Provisions, but it is still a good idea for the Resident Engineer to be familiar with how these contract requirements came about.

The Special Provisions may require the Contractor to prepare a fugitive dust control plan, and may restrict burning of trash, plant materials, or other waste. The Special Provisions may also require the Contractor to discontinue all current work activities if the Governor declares an air pollution emergency. If the project is located in the area covered by the Governor's declaration, then the Resident Engineer must notify the Contractor immediately. The Contractor must stop work as soon as possible, but no later than four hours after notification. The Contractor is entitled to compensation and time extension in accordance with the Special Provisions.

Air Pollution

The U.S. Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), and the counties are vigorously enforcing statutes and rules covering air pollution emissions. In many cases, the more vigorous enforcement results from additional staffing of air pollution control agencies.

It is the responsibility of the Contractor to obtain the following permits when required by pollution control agencies.

Equipment Permits

This category of permits covers construction equipment used for crushing and screening operations, asphalt batch or drum dryer plants, heater-scarifiers, hot or cold recycling, and concrete batch plants.

ADEQ administers the permits at the state level and issues equipment-source permits for those counties that do not have an air pollution permit program. Maricopa, Pima, and Pinal Counties have their own permit process.

A specific permit applies to each designated piece of equipment and can be used on multiple sites. It is recommended that Contractors obtain a permit for each piece of equipment and keep it active. These permits can take up to four months to obtain.

Site or Project Earth Moving Permits

Maricopa County requires a site earth moving permit that covers fugitive dust generated by such operations as grading or excavating. This is covered under their Regulation III–Control of Air Contaminants, Rule 310, Open Fugitive Dust Sources. Some cities and tribes require Contractors to have site and haul permits.

Projects located in non-attainment areas for dust may include a stored specification modifying Subsection 107.14. The Contractor must prepare a dust control plan and obtain a site earth moving permit. A sample Job Site Dust Control Plan is include in the blank forms at the end of this chapter.

Some of the measures which the Contractor may use to control or minimize fugitive dust include:

- increase use of water or chemical dust suppressants;
- cease work temporarily during high winds;
- reduce vehicle speeds and number of trips;
- maintain freeboard of three inches or more in hauling equipment; and
- cover or stabilize stockpiles.

The Contractor will be required to cover haul trucks with tarps or other suitable enclosures in some areas.

Contracts presently underway in non-attainment areas should be modified to develop a dust control plan, obtain a permit, and furnish sufficient palliative to comply with the local dust control requirements.

Where possible, efforts should be made to use chemicals to conserve water.

If additional information is required about air pollution requirements and the location of non-attainment areas, call ADOT's Office of Environmental Planning at (602) 712-8635.

Noise Control

Some municipalities have limits on the amount of noise a construction site can generate near residential areas. In areas where construction noise may be a potential issue, the Resident Engineer and the Contractor should discuss noise restriction requirements with local officials prior to construction. Generally the standard maximum allowable noise level is 67 decibels.

104.09 Prevention of Landscape Defacement; Protection of Streams, Lakes and Reservoirs

The U.S. Environmental Protection Agency (EPA) has regulations concerning storm water runoff and pollution prevention at construction sites. These regulations have been revised several times in recent years, but the intent remains the same. The regulations require effort on the part of the property owners, agencies, and developers to prevent the pollution of waterways and to document the pollution prevention measures taken on a construction project.

NPDES Regulations

The main EPA regulation governing runoff pollution is the National Pollution Discharge Elimination System General Permit for Storm Water Discharges Associated with Industrial Activity (NPDES). This regulation requires anyone constructing a project which disturbs more than 5 acres (2 hectares) of land to file a Notice of Intent (NOI) with the EPA.

A Storm Water Pollution Prevention Plan (SWPPP) must be prepared before the project can begin. During construction, the Resident Engineer conducts regular inspections to check the effectiveness of the plan. An EPA Notice of Termination (NOT) is filed at the end of the project.

Federal aid projects less than 5 acres (2 hectares) will also follow the requirements of NPDES including the development of an SWPPP. This is an FHWA administrative requirement, so no forms need to be filed with the EPA. The Resident Engineer may be responsible for developing the SWPPP and performing the required inspections. Some non-federal aid projects less than 5 acres (2 hectares) may also be selected by ADOT's Roadside Development Section for NPDES compliance. Again, no filings will be required with the EPA, only the NPDES procedures and regulations need to be followed.

NPDES also applies to off-site activities. For example, if the Contractor has a borrow source and disturbs 5 acres (2 hectares) or more, that site falls under NPDES regulations.

Asphalt and concrete plant sites and crushing operations (regardless of the size of area disturbed) fall under NPDES regulations. The Resident Engineer should ensure the Contractor has filed with the EPA for inclusion under the NPDES General Permit for all off-site and on-site regulated activities.

Storm Water Pollution Prevention Plans (SWPPP)

There are two methods for handling erosion control on projects that disturb five or more acres. A detailed Storm Water Pollution Prevention Plan will be developed by the Project Designers with the oversight of ADOT's Roadside Development Section for large projects. Project Plans, Special Provisions, and the bid schedule will

City of Apache Junction

Home of the Superstition Mountains

George R. Hoffman
City Manager

Kathleen Connelly
City Clerk

CERTIFICATE

I certify that I am the duly appointed, qualified, and acting City Clerk of the City of Apache Junction, Arizona; that as such, I have in my possession all of the resolutions as adopted by the City Council of the City of Apache Junction, Arizona; and that the attached is a true and correct copy of Resolution No. 04-24, which was presented to and adopted by the City Council on September 21, 2004, as it appears in my records.

September 24, 2004
Date

Kathleen Connelly
Kathleen Connelly
City Clerk

97679

ADEQ AIR QUALITY DIVISION
04 SEP 29 AM 11:29

1001 N. Idaho Road, Apache Junction, AZ 85219
Voice (480) 982-8002 • FAX (480) 982-7018 • TDD (480) 983-0095

RESOLUTION NO. 04-24

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF APACHE JUNCTION, ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County nonattainment area has been classified as a Serious Area for particulate matter ("PM-10"); and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality ("ADEQ") has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes Section 49-406 (G) requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF APACHE JUNCTION, ARIZONA, AS FOLLOWS:

SECTION 1. GOOD FAITH EFFORT FOR IMPLEMENTATION

That the Mayor and Council of the City of Apache Junction, Arizona, agree to proceed with a good faith effort to implement the measures identified in Exhibit A, attached hereto.

SECTION 2. IMPLEMENTATION COMMITMENT; FUNDING CONTINGENCY

That the Mayor and Council of the City of Apache Junction, Arizona, in Exhibit A, commit to implement the measures as scheduled and with the funding sources identified recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies. The City of Apache Junction, Arizona, agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF APACHE JUNCTION, ARIZONA, THIS 21ST DAY OF SEPTEMBER, 2004.

SIGNED AND ATTESTED TO THIS 21ST DAY OF SEPTEMBER, 2004.

Douglas Coleman

DOUGLAS COLEMAN
MAYOR

ATTEST:

Kathleen Connelly

KATHLEEN CONNELLY
CITY CLERK

APPROVED AS TO FORM:

9-13-04

RICHARD J. STERN
CITY ATTORNEY

EXHIBIT A

Measure Title: 04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description: The City of Apache Junction, Arizona, has developed a protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The protocol:

- Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads;
- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000;
- Addresses trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and
- Provides for the annual reevaluation of the protocol.

Responsible Agency and Authority for Implementation: The City of Apache Junction, Arizona, Department of Public Works, is responsible for implementing this control measure pursuant to:
Arizona Revised Statutes (A.R.S.) Section 9-240, General Powers of Council.
Arizona Constitution, Article 13, Section 2.
A.R.S., Section 28-626: Uniform Application of Laws Throughout State.
A.R.S., Section 28-627: Powers of Local Authorities.
Apache Junction City Code, Volume I., Public Works; Engineering Guidelines; Apache Junction City Code Volume II, Land Development Code, Chapter 1, Zoning Ordinance.

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department ("MCESD") and the Arizona Department of Environmental Quality ("ADEQ") by September 30, 2004 and will be implemented by February 2, 2005. One additional PM-10 efficient street sweeper will be required to increase the frequency of sweeping in accordance with the protocol. This sweeper will be purchased and deployed by February 2, 2005.

Level of Personnel and Funding Allocated for Implementation: The FY 2005 City budget includes $125,000 for the purchase of one additional PM-10 efficient sweeper. There are also adequate resources ($100,000) contained in the FY 2005 budget to fund one additional driver for this sweeper.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the City of Apache Junction. The reevaluation will be submitted to MCESD and ADEQ, by February 2 of each year, beginning in 2006. The City will also submit progress reports on measure implementation to MCESD or ADEQ, upon request.

RESOLUTION NO. 2448-04

A RESOLUTION OF THE COUNCIL OF THE CITY OF AVONDALE, ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County nonattainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations on the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, ARIZ. REV. STAT. § 49-406 (G) requires that each agency that commits to implement a control measure describing that commitment in a resolution adopted by the governing body which specifies (i) its authority for implementing the measure as provided in statute, ordinance, or rule, (ii) a program for enforcement of the measure and (iii) the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF AVONDALE, as follows:

SECTION 1. That the Council of the City of Avondale (the "City Council") agrees to proceed with a good faith effort to implement the measures identified in Exhibit A, attached hereto and incorporated herein by reference.

SECTION 2. That the City Council commits to implement the measures as scheduled and with the funding sources identified in Exhibit A. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City of Avondale agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

SECTION 3. That the Mayor, the City Manager, the City Clerk and the City Attorney are hereby authorized and directed to execute all documents and take all steps necessary to carry out the purpose and intent of this Resolution.

PASSED AND ADOPTED by the Council of the City of Avondale, September 20, 2004.

Ronald J. Drake, Mayor

ATTEST:

Linda M. Farris, City Clerk

APPROVED AS TO FORM:

for Andrew J. McGuire, City Attorney

Exhibit A

04-DC-1 Reducing Re-entrained Dust Emissions from Targeted Paved Roads

Measure Description: The City of Avondale has developed operating procedures to reduce re-entrained dust emissions from paved roads that typically experience a high level of soil deposition. The operating procedures:

1. Identify targeted high dust arterials and collectors and increase sweeping frequencies with PM-10 efficient sweepers for designated areas that involve on-going industrial-use high dust trackout and temporary residential and commercial development high-dust trackout to reduce the re-entrained dust emissions from these roads. Unpaved shoulders on city arterial streets will also be regularly maintained by the City.

2. Implementation of this operating procedure increases the City's frequency of sweeping for the designated areas from twice a month to once every ten calendar days, a frequency improvement of 100% over current practice in these identified areas. Unpaved shoulders will be maintained every six months per the City's regular unpaved road maintenance schedule.

3. City staff including Engineering Construction Inspectors and Code Enforcement will address track out associated with identified facilities and activities regulated by Maricopa County, and will notify the County when rule violations are observed.

4. The City of Avondale will re-evaluate the operating procedures for the reduction of re-entrained dust emissions from paved roads annually with City Council through the budget development and approval process.

Responsible Agency and Authority for Implementation: The City of Avondale's Field Operations Department, Engineering Department and Code Enforcement are responsible for implementing these control measures. The City is authorized to implement this measure by the following:

Arizona Revised Statute (A.R.S.), Section 9-240, General Powers of Council

Implementation Schedule: The operating procedures will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) by September 30, 2004 and will be implemented by February 2, 2005. Additional manpower designated to the on-going identified activities will be scheduled accordingly. It is not anticipated that an additional PM-10 sweeper will be purchased to meet this responsibility. A CMAQ grant application has been made to purchase a new PM-10 sweeper that is needed to replace the last non-PM-10 compliant sweeper in the fleet. Maintenance of unpaved arterial shoulders will also be incorporated within the regular city maintenance schedule.

Level of Personnel and Funding Allocated for Implementation: Personnel and funding to implement these measures will be found within the current FY 04-05 City of Avondale operating budget. No additional personnel or funding is anticipated in the current fiscal year. Personnel and funding levels will be reviewed annually to determine if additional resources will be needed to fund demands.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the non-attainment area plans.

Monitoring Program: The City will produce an annual reevaluation of its operating procedures for reducing PM-10 emissions for this control measure through a report to its Council. The reviewed report will be submitted to MCESD and ADEQ by February 2 of each year, beginning in 2006. The City will also submit progress reports on measure implementation to MCESD or ADEQ upon request.

Operating Procedures to Meet 04-DC-1

1. If funded with CMAQ dollars, purchase a fourth PM-10 sweeper by February 2005. (97-DC-5)

2. Increase sweeping on arterials streets from twice a month to once every ten days. This will require 16 additional equipment operator hours per month. The 16 monthly hours will be generated from an adjustment to the current practice of sweeping residential two-lane streets once a week. The schedule transition to improved frequency will take place by February 2005.

3. City staff, including Engineering Construction Inspectors and Code Enforcement, will address track out associated with identified facilities and activities regulated by Maricopa County by examining permit requirements when performing regular inspections, and will notify the County when rule violations are observed.

4. The City of Avondale will re-evaluate the operating procedures for the reduction of re-entrained dust emissions from paved roads annually during the budget process; specifically addressing the issue during hearings on the Engineering Department budget.

103278

FAX COVER SHEET

TOWN OF BUCKEYE
100 N. Apache Road, Suite A
Buckeye AZ 85326
623 386-4691

DATE: 01-24-2005

TO: Lhamo as requested

Cc:

FAX NUMBER: (602) 771-2366

FROM: CARROLL REYNOLDS, TOWN MANAGER
TOWN OF BUCKEYE

RE: Resolution 58-04

Number of pages including cover sheet: 3

MESSAGE: Yes

103278

RESOLUTION 58-04

A RESOLUTION OF THE MAYOR AND TOWN COUNCIL OF THE TOWN OF BUCKEYE, ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSION FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County nonattainment has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violation of the 24-hour PM standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED by the Town of Buckeye as follows:

SECTION 1. That the Council of the Town of Buckeye agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the Town of Buckeye commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies; the Town agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Mayor and Council of the Town of Buckeye, Arizona this 16th of November, 2004.

Dustin Hull, Mayor

ATTEST:

Linda Garrison, Town Clerk

APPROVED AS TO FORM:

Scott Ruby, Town Attorney

EXHIBIT A

Reducing Reentrained Dust Emissions from Targeted Paved Roads.

The Town of Buckeye protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition include;

1. Identifying targeted arterials and collectors and increase sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads.
2. Obtain a second street sweeper to provide improved sweeping frequency in FY 05-06 or as soon a funding reasonably allows.
3. Identify areas of trackout associated with facilities and activities that are regulated by Maricopa County and notify the County of observed violations.
4. Identify unpaved roads and alley ways and submit applications for funding to pave the roadways / alleyways.

The Town of Buckeye, Public Works Department, is responsible for implementing this control measure(s). The Town is authorized to implement the measure(s) by the following:

Arizona Revised Statutes (A.R.S.) Section 9-240, General Powers of Council
Arizona Constitution, Article 13, Section 2
A.R.S. Section 28-626; Uniform Application of Laws Throughout State
A.R.S., Section 28-627; Powers of Local Authorities

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) with a planned implementation by February 2, 2005. Purchase of an additional street sweeper is dependent on Funding availability however a sweeper is currently planned for FY 2005-06.

Level of Personnel and Funding Allocated for Implementation: The FY 2005-06 Town budget is in preparation and, depending on available funds, is intended to have sufficient funding for the staffing, operation, and maintenance of the Towns street sweeper(s).

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the Town of Buckeye. The reevaluation will be submitted to MCESD and ADEQ, by February 2 of each year, beginning in 2006. The Town will also submit progress report on measure implementation to MCESD 0or ADEQ, upon request.

98106

TOWN OF CAREFREE

100 EASY STREET
P.O. BOX 740
CAREFREE, ARIZONA 85377
(480) 488-3686 • FAX (480) 488-3845

October 8, 2004

Ms. Cathy Jordan
ADEQ Air Quality Planner
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Re: High Dust Paved Roads

Dear Ms. Jordan:

The Town of Carefree has no high dust paved roads. The Town contracts to have one (1) mile of streets swept bi-monthly. Wash crossings, intersections, and other areas are cleaned on an as needed basis.

If you have any questions or need additional information, please contact me at 480-488-3686.

Sincerely,

Jonathan H. Pearson
Town Administrator

JP: jd

From: Diane Arnst
To: LBauer@Mag.Maricopa.gov
Subject: Carefree Resolution Issue

Peter Hyde has advised me that the only credit taken in the modeling is for those municipalities listed in MAG's " PM-10 Certified Street Sweepers Funded with CMAQ Funds" attachment to the Model Resolution packet. Carefree is not on that list.

Therefore, it would be best to refer Carefree back to the first paragraph of your memorandum concerning the Model Resolution Package and to Attachment One. Carefree's letter should explain that Carefree prepared a protocol to identify targeted "high dust" paved roads, and after applying this protocol Carefee has determined that no "high dust" paved roads are in its jurisdiction. A copy of the Carefree protocol should be attached, listing the "factors that may be considered" that contribute to PM10 loading described in the last paragraph of Attachment One to your memorandum dated August 6, 2004. That letter and attached protocol should be addressed to ADEQ and received by 9/30. DLA 9/10/04

CC: Hyde, Peter

99414

ADEQ
AIR QUALITY DIVISION
04 NOV -3 AM 10: 43

Chandler . Arizona
Where Values Make The Difference

October 29, 2004

Ms. Lhamo Lemoine
Arizona Department of Environmental Quality
3415 A-3
1110 W. Washington Street
Phoenix, AZ 85007

Dear Ms Lemoine:

Enclosed is a copy of City of Chandler Resolution No. 3782, which was approved by City Council on October 14, 2004. This resolution addresses the City's commitments to reduce reentrained dust on identified paved roads in Chandler.

Thank you for your patience during the City's review and approval process. If you have any questions please contact me at 480-782-3441.

Sincerely,

Mike Normand
Transportation Services & Planning Manager

Encl.

c: Dan Cook
Jim Wiess
Jim Cairns
Ruthann Goemaat

Mailing Address
Mail Stop 412
PO Box 4008
Chandler, Arizona 85244-4008

Public Works Department
Transit Services
Telephone (480) 782-3440
Fax (480) 782-3445
Web www.chandleraz.gov

Location
215 East Buffalo Street
Chandler, Arizona 85225

RESOLUTION NO. 3782

RESOLUTION TO IMPLEMENT MEASURES TO REDUCE RE-ENTRAINED DUST EMISSIONS FROM IDENTIFIED PAVED ROADS IN CHANDLER AS PART OF THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR AIR QUALITY

WHEREAS, the Maricopa County non-attainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the City of Chandler adopted certain air quality control measures under Resolution No. 2672 and Resolution No. 2929, and

WHEREAS, the Maricopa County non-attainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Phoenix metropolitan area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce re-entrained dust emissions from paved roads in the Phoenix metropolitan area and similar sources elsewhere in the PM-10 non-attainment area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for implementation of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF CHANDLER that air quality control measures related to street sweeping adopted under Resolution No. 2672 and resolution No. 2929 shall be amended as follows:

SECTION 1. That the Council of the City of Chandler agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the City of Chandler commits to use its best efforts to implement the measures as scheduled. Recognizing that implementation will depend on the funding programs or processes of various state and federal agencies, the City of Chandler agrees to consider modifications of the funding programs or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Mayor and Council of the City of Chandler, Arizona this 14th day of October 2004.

ATTEST:

CITY CLERK

CITY OF CHANDLER CORPORATE SEAL ARIZONA

MAYOR

CERTIFICATION

I HEREBY CERTIFY that the above and foregoing Resolution No. 3782 was duly passed and adopted by the City Council of the City of Chandler, Arizona, at a regular meeting held on the 14th day of October 2004, and that quorum was present thereat.

Marla Paddock
CITY CLERK

APPROVED AS TO FORM:

Dennis M. O'Neill
CITY ATTORNEY

EXHIBIT A

Measure Title: Reducing Reentrained Dust Emissions from Identified Paved Roads.

Measure Description: The City of Chandler developed a protocol to reduce reentrained dust emissions from paved roads that typically experience high levels of soil deposition. The City of Chandler will use its best efforts to implement this control measure.

The protocol:

- Identify "high dust" arterials and collector road segments and increase sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads. Identification of high dust areas will be through observation (primarily by existing street sweeper personnel familiar with all roadways) and by observing areas near known dust producing sources such as gravel operations, vacant property, and construction sites.

- Sweepers will be reassigned as necessary to increase the sweeping rates on "high dust" arterials and collectors, such that "high dust" arterials will be swept three times per month and "high dust" collectors will be swept twice per month.

- City staff will increase awareness of trackout associated with facilities and activities regulated by Maricopa County, and will notify the County when such trackout is observed; and

- "High dust" arterial and collector designations and sweeping schedules will be reviewed periodically and revised as necessary.

Responsible Agency and Authority for Implementation: The City of Chandler, Public Works Department, is responsible for implementing this street sweeping control measure. The City of Chandler is authorized to implement this measure by Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council.

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) and will be implemented by February 2, 2005. No additional equipment is required at this time because sweepers may be reassigned as needed.

Level of Personnel and Funding Allocated for Implementation: The FY 2004/2005 City of Chandler budget includes funding to operate the existing PM-10 sweepers. These existing sweepers will be reassigned to increase sweeping in "high dust" areas without an increase in funding above existing levels. Funding of this control measure in future fiscal years will be considered by the City Council in the annual budget process.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted by the City of Chandler on a periodic basis. Upon written request the results of implementation and such reevaluation will be submitted to MCESD and ADEQ.

EXHIBIT B

High Dust Locations
Arterial and Collector Streets Identified for Additional Sweeping

September 2004

Arterial	Collector	Street Name	From/To
X		Arizona Avenue	Willis Road to Ryan Road
X		Germann Road	Arizona Avenue to McQueen Road
X		McQueen Road	Queen Creek Road to Ocotillo Road
X		Price Road	Germann Road to the Santan Freeway
X		56th Street	Chandler Boulevard south to City limits
	X	Summit Place	Alma School Road to Dobson Road
	X	Doral Drive	Lindsay Road to Val Vista Drive
	X	Hunt Highway	City limits east of McQueen Road to Val Vista Drive

Notes:
Identified Arterials will be swept three (3) times per month.
Identified Collectors will be swept two (2) times per month.

103921

CITY MANAGERS OFFICE

12145 NW GRAND AVENUE, SUITE 4
EL MIRAGE, ARIZONA 85335
OFFICE:623-972-8116

FACSIMILE TRANSMITTAL SHEET

TO: Lana
FROM: BJ Cornwall
COMPANY: ADEQ
DATE: 2-9-05
FAX NUMBER: 602 771 2366
TOTAL NO. OF PAGES INCLUDING COVER: 2
PHONE NUMBER:
RE:

NOTES/COMMENTS:

Per your request.

PM-10 EXIBIT "A"
RESOLUTION R04-10-54

1. The notification to the City of El Mirage within Maricopa County, Arizona regarding additional measures to the dust emissions for the non-attainment areas have been reviewed and adopted. The City of El Mirage Mayor and Council have recognized and adopted on October 28, 2004 measures for control in these matters.

2. Prior to Traffic Control Plans being issued for roadway improvements the Contractor/Developer will be notified to provide dust control or a dust palliative surface for traffic entering unpaved undeveloped surfaces. This is line item number 3 of the Traffic Control Plan Submittal Form.

3. Prior to issuance of haul permits the Contractor/Developer shall supply a copy of their haul route and supply a street sweeper at the ingress/egress and route locations.

4. Outside of construction areas within the Incorporated city limits of the City of El Mirage, the City of El Mirage shall improve and implement steps that are demanding for the environmental needs. These steps include the purchase of a new street sweeper which brings the current total to two (2) City of El Mirage street sweepers for the municipality.

5. Within the Incorporated city limits of the City of El Mirage, the city shall increase the scheduling for street sweeping.

6. Within the Incorporated city limits of the City of El Mirage, the city shall place (GSA) asphalt millings for residential dirt road surfaces.

7. Within the incorporated city limits of the City of El Mirage, the city shall place (GSA) asphalt millings on the unimproved shoulders of high-profile high-volume truck traffic locations. This includes but is not limited to El Mirage and Dysart Roads. This placement shall consist of an eight to ten foot width from the edge of asphalt.

100145

TOWN OF FOUNTAIN HILLS
Public Works Department

16836 E. Palisades Boulevard, Bldg. A - PO Box 17958 - Fountain Hills, AZ 85269
Phone: (480) 816-5130 Fax: (480) 837-1404

To:	Lhamo LeMoine - ADEQ	From:	Betty Brannon
Fax:	602-771-2366	Pages:	5
Phone:		Date:	November 18, 2004

☐ Urgent ☐ For Review ☐ For Comment ☐ Please Reply

Regarding Dust reduction ordinance: Attached is our packet that goes before Town Council tonight (11/18/04). We will forward the final resolution once it is signed by the Mayor.

Betty Brannon

100145

TOWN OF FOUNTAIN HILLS
PUBLIC WORKS DEPARTMENT
INTER OFFICE MEMO

TO: Honorable Mayor and Town Council	DT: November 10, 2004
FR: Randy L. Harrel, Town Engineer THRU: Tom Ward, Public Works Director	RE: Dust Reduction Ordinance

To comply with the Federally mandated air quality requirements for the State Implementation Plan for the Salt River Area (compliance for PM-10 particulate matter, i.e. dust requirements), each municipality needs to approve a resolution committing to reduce re-entrained dust emissions on arterial and collector roadways. (Re-entrained dust is generated by dirt that is deposited by water, wind, spillage, etc. onto paved roads, and then picked up again by the wind, becoming dust.)

The attached resolution is based on MAG's model resolution. The commitments and the attached Protocol specifically address Fountain Hills' dust re-entrainment from paved streets.

The primary methods used for reducing re-entrained dust are:

- Use a PM-10 efficient street sweeper. (Our current sweeper is 7-years old, and is not a PM-10 efficient sweeper.) The Town has applied for grant funding for a new PM-10 sweeper, and the Town's Capital Improvements plan budget does additionally include funding for the Town costs for a PM-10 efficient sweeper in FY 05-06.
- Increase sweeping frequency. (We have recently ordered a 2nd dump truck. Upon its delivery, our existing dump truck can be utilized as a field located trailer – to avoid having the sweeper return to the street yard when its hopper is full. This will increase sweeping mileage. And, we anticipate adding additional man-hours of sweeper operator time next budget year.)
- Reduce construction "track-out" of dirt into streets. (The most common method is to use a gravel pad at a construction entrance onto a paved street.)
- Reevaluate the program annually.

Staff recommends approval of the attached "Resolution to Implement Mesures to Reduce Reentrained Dust Emissions from Targeted Paved Roads in the Revised PM-10 State Implementation Plan for the Salt River Area", together with its Exhibit A ("Reduction of Reentrained Dust Emissions Commitment"), and Protocol ("Protocol to Reduce Reentrained Dust Emissions from Targeted Paved Roads").

Town of FOUNTAIN HILLS
Public Works Department

October 12, 2004

PROTOCOL TO REDUCE REENTRAINED DUST EMISSIONS
FROM TARGETED PAVED ROADS

Identification and Increase Sweeping Frequency on "High-Dust" Roads:
Sediment deposition on roads – particularly at un-culverted wash crossings after storms – is the Town's largest "high dust" roadway sweeping issue. Storm clean-up from arterial and collector streets, followed by sweeping – prior to its drying out – is a high Town priority, frequently requiring overtime work.

Overall arterial/collector street sweeping frequency will be increased as follows, upon obtaining a PM-10 efficient street sweeper. (And after receipt of the currently ordered dump truck, which will allow our only existing dump truck to be tarped and site located for emptying street sweepings.)

	Sweeping Frequency (Days)	
	Existing	Proposed
Arterials	15	15
Collectors	45	30

Improvement over Previous MAG Commitment (February 2000):
The Town did not have a commitment listed in the "Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-attainment Area, February 2000". [VERIFY???]

Track-out Violations – Notification to Maricopa County:
The Town's engineering inspectors advise subdivision and commercial contractors of track-out issues when noted, and notify Maricopa County of ruling violations.

The Town is currently working with Maricopa County to implement procedures regarding advising custom single-family homebuilders of track-out issues, and to notify Maricopa County of ruling violations.

Annual Re-evaluation of Protocol:
The Town will re-evaluate this protocol on an annual basis, and will submit any necessary modifications to this protocol.

RESOLUTION NO. 2004-63

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE TOWN OF FOUNTAIN HILLS, ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County nonattainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations on the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, ARIZ. REV. STAT. § 49-406 (G) requires that each agency that commit to implementing a control measure by describing that commitment in a resolution adopted by the governing body which specifies (i) its authority for implementing the measure as provided in statute, ordinance, or rule, (ii) a program for enforcement of the measure and (iii) the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE TOWN OF FOUNTAIN HILLS, ARIZONA, as follows:

SECTION 1. That the Council of the Town of Fountain Hills (the "Town Council") agrees to proceed with a good faith effort to implement the measures identified in Exhibit A, attached hereto and incorporated herein by reference.

SECTION 2. That the Town Council commits to implementing the measures as scheduled and with the funding sources identified in Exhibit A. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the Town of Fountain Hills agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

SECTION 3. That the Mayor, the Town Manager the Town Clerk, and the Town Attorney are hereby authorized and directed to execute all documents and take all steps necessary to carry out the purpose and intent of this Resolution.

PASSED AND ADOPTED BY the Mayor and Council of the Town of Fountain Hills, Arizona, November 18, 2004.

FOR THE TOWN OF FOUNTAIN HILLS:

W. J. Nichols, Mayor

ATTESTED TO:

Bevelyn J. Bender, Town Clerk

REVIEWED BY:

Timothy G. Pickering, Town Manager

APPROVED AS TO FORM:

Andrew J. McGuire, Town Attorney

105884

RESOLUTION NO. 2575

A RESOLUTION OF THE COMMON COUNCIL OF THE TOWN OF GILBERT, ARIZONA TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the Maricopa County nonattainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes 49-406 (G) requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED by the Common Council of the Town of Gilbert, Arizona, as follows;

SECTION 1. That the Council of the Town of Gilbert agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the Town of Gilbert commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the Town agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Common Council of the Town of Gilbert, Arizona, this 29th day of March 2005.

Steven M. Berman, Mayor

ATTEST:

Catherine A. Templeton, Town Clerk

APPROVED AS TO FORM:

Curtis, Goodwin, Sullivan, Udall & Schwab, P.L.C.
Town Attorneys
By _____

Exhibit A

TOWN OF GILBERT'S COMMITTED MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS

04-DC-1. Reducing Reentrained Dust Emissions from Targeted Roads

Measure Description: The Town of Gilbert has developed a protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The protocol:

- Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrainment dust emissions from these roads;

- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for Maricopa County Nonattainment Area, February 2000.

- Addresses track-out associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and

- Provides for the annual reevaluation of the protocol.

Responsible Agency and Authority for Implementation: The Town of Gilbert, Public Works Department, is responsible for implementing this control measure. The Town is authorized to implement this measure by the following:

Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council
Arizona Constitution, Article 13, Section 2
A.R.S., Section 28-626: Uniform Application of Laws throughout State
A.R.S., Section 28-627: Powers of Local Authority
Code of Gilbert Arizona, Section 1-37: Corporate Powers

Implementation: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) and will be implemented during calendar year 2005.

Level of Personnel and Funding Allocated for Implementation: The Fiscal Year 2005 Town budget includes the purchase of one additional PM-10 efficient street sweeper ($158,864) and one additional driver for this sweeper ($47,556).

Enforcement Program: A.R.S. Section 49-406 grants MCESD and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the Town of Gilbert. The reevaluation will be submitted to MCESD and ADEQ, by February 2, of each year, beginning in 2006. The Town will also submit progress reports on measure implementation to MCESD and ADEQ, upon request.

TOWN OF GILBERT
PROTOCOL FOR REDUCING PM_{10} EMISSIONS FROM "HIGH DUST" PAVED ROADS

PROTOCOL

The following protocol will be used to identify "high dust" paved roads:

- areas identified by complaints from residents or Town employees;
- areas identified by street sweeper driver logbooks;
- paved arterial streets that have unpaved shoulders in Town of Gilbert right-of-way; and
- paved arterial streets that have unpaved or unstabilized entrances from unpaved roads or alleys.

This protocol will capture potential sources of "high dust" including regulated facilities and activities, adjacent land use, agriculture, heavy-duty vehicle traffic, and high volume traffic roadways.

PM_{10} – efficient street sweepers will be used to reduce re-entrained dust emission from these roads.

ENHANCEMENT ABOVE PREVIOUS COMMITMENTS

This protocol constitutes an enhancement by expanding the monthly street sweeping program to include arterials with unpaved shoulders. It also increases the frequency of street sweeping in areas identified as "high dust" by residents, town employees and street sweeper driver logbooks. These areas will be swept at least twice within a four-week period.

COORDINATION WITH MARICOPA COUNTY

Track-out identified by residents or Town employees will continue to be reported to Maricopa County Environmental Services Department (MCESD). Areas of track-out that are identified by street sweeper drivers will be reported periodically to MCESD. Immediate reporting is not practical because the area will have already been swept. MCESD can use these reports to investigate regulated facilities and activities that appear to be generating "high dust" conditions in violation of County rules.

PROTOCOL REEVALUATION

This protocol will be reviewed at least annually.

RESOLUTION NO. 3796 NEW SERIES

A RESOLUTION OF THE COUNCIL OF THE CITY OF GLENDALE, MARICOPA COUNTY, ARIZONA, IMPLEMENTING MEASURES TO REDUCE RE-ENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County non-attainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County non-attainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce re-entrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 non-attainment area; and

WHEREAS, Arizona Revised Statutes Sec. 49-406(G) requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF GLENDALE, as follows:

SECTION 1. That the Council of the City of Glendale agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the City of Glendale commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED, ADOPTED AND APPROVED by the Mayor and Council of the City of Glendale, Maricopa County, Arizona, this 14th day of September, 2004.

MAYOR

ATTEST:

City Clerk (SEAL)

APPROVED AS TO FORM:

City Attorney

REVIEWED BY:

City Manager

EXHIBIT A

Measure 04-DC-1. Reducing Re-entrained Dust Emissions from Targeted Paved Roads

Measure Description: The City of Glendale has developed a protocol to reduce re-entrained dust emissions from paved roads that typically experiences a high level of soil deposition. The protocol:

- Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the re-entrainment dust emission from these roads;
- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-attainment Area, February 2000;
- Addresses track-out associated with facilities and activities regulated by Maricopa County; by notifying the County when possible rule violations are observed; and
- Provides for the annual re-evaluation of the protocol.

Responsible Agency and Authority for Implementation: The City of Glendale, Field Operations Department/Streets Division, is responsible for implementing this control measure. The City is authorized to implement this measure by the following:

Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council
Arizona Constitution, Article 13, Section 2
A.R.S., Section 28-626: Uniform Application of Laws Throughout the State
A.R.S., Section 28-627: Powers of Local Authorities
City of Glendale Charter, Article I, Section 3: Powers of the city

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department and the Arizona Department of Environmental Quality by September 30, 2004 and will be implemented by February 2, 2005.

Level of Personnel and Funding Allocated for Implementation: Funding for the City's street sweeping program, including the enhanced targeted sweeping commitment are determined through the annual budget development process.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and the Arizona Department of Environmental Quality the authority to enforce measures identified in the non-attainment area plans.

Monitoring Program: A re-evaluation of the protocol for reducing PM-10 emissions from "high dust" paved public roads will be conducted annually by the City of Glendale. The re-evaluation will be submitted to the Maricopa County Environmental Services Department and the Arizona Department of Environmental Quality, by February 2 of each year, beginning in 2006. The City will also submit progress reports on measure implementation to Maricopa County or the State of Arizona, upon request.

GLENDALE TARGETED STREET SWEEPING PROTOCOL TO REDUCE DUST EMISSIONS

The City will identify the specific public street segments targeted for enhanced street sweeping. The amount and location of the city's dustiest paved streets will change as the city continues to urbanize and change.

Glendale's Field Operations Department/Streets Division will prepare and implement its enhanced street sweeping protocol targeting its dustiest paved streets. The City will submit its protocol and progress report to the appropriate oversight agencies, upon request.

For the purpose of complying with the Serious Area PM-10 Plan commitment, targeted enhanced street sweeping is capped at a maximum of five linear miles per year.

The City, in good faith, shall:

- use appropriate information and sound professional judgment in determining the specific street segments, number of miles and frequency of enhanced street sweeping;
- use PM-10 efficient street sweepers in sweeping its dustiest streets;
- update it's enhanced street sweeping protocol on an annual basis; and
- request that City Streets employees notify the County when potential dust violations are observed..

<u>2005-2006 Enhanced Street Sweeping Protocol</u>

- Effective February 2, 2005 through February 1, 2006
- Street sweeping segments, length, and schedule
    - Glendale Avenue from Glen Harbor Blvd. to El Mirage Road (2 mile segment, once a week)
    - Dysart Road from Glendale Avenue to Northern Avenue (1 mile segment, once a week)
    - Glendale Avenue from 83rd Avenue to Loop 101 (2 mile segment, once a week)

99306

ADEQ
AIR QUALITY DIVISION
04 NOV -2 PM 12:18

Goodyear ARIZONA

October 28, 2004

Lhamo Lemoine
Air Quality Planning Section
Arizona Department of Environmental Quality
1110 West Washington Street, Mail Code 3415-A3
Phoenix, Arizona 85007

Re: PM-10 State Implementation Plan for Salt River Area
City of Goodyear Ordinance No. 04-941

Dear Ms. Lemoine;

Enclosed for your use is a copy of the PM-10 implementation ordinance that was approved By City Council at their regular meeting on October 25, 2004.

If you have any questions or require additional information, please contact me at 623-882-7954.

Sincerely,
CITY OF GOODYEAR

David J Ramirez

David Ramirez
City Engineer

C: Cato Esquivel, Public Works Director
Jo Crumbaker Maricopa County Environmental Services Department
Air Quality Planning
1001 North Central Avenue, Suite 695
Phoenix, Arizona 85004

RESOLUTION 04-941

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA TO AUTHORIZE THE CITY MANAGER TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS the Maricopa County nonattainment has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

BE IT RESOLVED BY THE MAYOR AND COUNCIL of the City of Goodyear, Maricopa County, Arizona, that:

SECTION 1. That the Council of the City of Goodyear agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the City of Goodyear commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Mayor and Council of the City of Goodyear, Maricopa County, Arizona this 25th day of October 2004.

James M. Cavanaugh, Mayor

Attested:

Dee Cockrum, City Clerk

CITY OF GOODYEAR INCORPORATED 1948 GOODYEAR, ARIZONA

Approved as to form:

James H. Oeser, City Attorney

CERTIFICATION OF RECORDING

STATE OF ARIZONA)
) ss.
County of Maricopa)

I, the undersigned Dee Cockrum, being the duly appointed, qualified and City Clerk of the City of Goodyear, Arizona, certify that the foregoing Resolution No. 04-941, passed and adopted at the regular Meeting of the Council of the City of Goodyear, Maricopa County, Arizona held on the 25th day of October 2004, at which a quorum was present and voted in favor of said resolution.

Given under my hand and seal, this 25th day of October 2004.

Dee Cockrum
City Clerk

CITY OF GOODYEAR INCORPORATED 1946 GOODYEAR, ARIZONA

EXHIBIT A

Measure Title: 04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads.

Measure Description: The City of Goodyear has developed a protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The protocol:

- Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads;
- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000;
- Addresses track out associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and
- Provides for the annual reevaluation of the protocol.

Responsible Agency and Authority for Implementation: The City of Goodyear, Public Works Department, is responsible for implementing this control measure. The City is authorized to implement this measure by the following:

Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council Arizona Constitution, Article 13, Section 2; A.R.S., Section 28-626: Uniform Application of Laws Throughout State; A.R.S., Section 28-627: Powers of Local Authorities; City of Goodyear Charter, Article I. Section 3. Powers of the City; City of Goodyear Code, Chapter 2. Powers and Duties

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) by September 30, 2004 and will be implemented by February 2, 2005. The frequency of sweeping will be increased in accordance with the protocol. Two PM-10 efficient street sweepers will be purchased to replace the City's non-PM-10 efficient street sweepers. The PM-10 sweepers will be purchased and deployed by February 2, 2006 subject to grant finding approval through CMAQ.

Level of Personnel and Funding Allocated for Implementation: The FY 2006 City budget will include the City's share for the purchase cost for the two PM-10 efficient street sweepers. There are also adequate resources contained in the FY 2005 budget to fund two drivers for the City's sweepers.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the City of Goodyear. The reevaluation will be submitted to MCESD and ADEQ, by February 2 of each year, beginning in 2006. The City will also submit progress reports on measure implementation to MCESD or ADEQ, upon request.

Protocol for Reducing Reentrained Dust Emissions from Targeted Paved Roads

City of Goodyear
Public Works Department and Community Development Engineering Division

Effective February 2, 2005

1. The City of Goodyear continually identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions form these roads. Targeted roads are identified according to their locations and the level of the following types of activities:
   A. Low water road crossings susceptible to debris collection following storm events.
   B. Roads in developing areas of the city susceptible to the collection of debris resulting from construction activity.
   C. Roads susceptible to the collection of debris resulting from higher volumes of heavy vehicle traffic.

   The frequency of sweeping will be increased for the locations and conditions noted above from once every two weeks to the level as necessary to reduce the reentrained dust emissions from these roads.

   (Note: The City of Goodyear will replace its two non-PM-10 efficient sweepers with PM-10 efficient sweepers subject to the approval of CMAQ funding in the FY 2005-2007 Transportation Improvement Program. If funding is approved, the City anticipates ordering the two sweepers in July 2005 with delivery approximately six months later. Prior to the commissioning of the new sweepers, the City will apply increased sweeping frequencies according to this protocol utilizing its existing sweepers.)

2. The protocol described in Section 1 constitutes an enhancement and improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for Maricopa County Nonattainment Area, February 2000, in the following respects:
   A. Specific road locations and conditions are targeted wherein increased sweeping frequencies will be applied to reduce reentrained dust emissions from these roads.
   B. PM-10 efficient sweepers will replace existing sweepers further reducing reentrained dust emissions from city roads in general and targeted road specifically.

3. The City of Goodyear Engineering Division construction inspectors in coordination with Public Works personnel will monitor trackout in the City of Goodyear associated with facilities and activities regulated by Maricopa County and will notify the County when rule violations are observed. The Engineering Division will coordinate training opportunities with the County for training new city personnel as well as keeping current regarding County rules and regulations pertaining to trackout.

4. The City of Goodyear will reevaluate this protocol annually. Modifications will be implemented whenever possible to improve its effectiveness.

97957

RESOLUTION NO. 8344

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, STATING THE CITY'S INTENT TO IMPLEMENT MEASURES TO REDUCE PARTICULATE POLLUTION.

WHEREAS, the Arizona Department of Environmental Quality has determined that the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10 and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, Arizona Revised Statutes, Section 49-406(G) requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MESA, MARICOPA COUNTY, ARIZONA, AS FOLLOWS:

Section 1: That the Mesa City Council agrees to proceed with a good faith effort to implement the measures identified in Exhibit A, subject to necessary funding.

PASSED AND ADOPTED by the City Council of the City of Mesa, Maricopa County, Arizona, this 4th day of October, 2004.

APPROVED:

Reno Hawker

Mayor

CITY OF MESA CORPORATE SEAL MARICOPA COUNTY, AZ.

ATTEST:

City Clerk

Exhibit A

04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description:

Develop and implement a protocol for identifying arterial and collector roadway segments that typically experience a high level of soil and dust deposition. Examples of factors that may be used to identify targeted roadways include: land use, overall traffic volume, heavy-duty truck traffic, unpaved shoulders and other characteristics.

Based upon completion of the analysis, the City will implement paved road dust control measures which may include targeted use of PM-10 efficient street sweepers, notifications to Maricopa County regarding track-out, and other dust control measures.

Implementing City Department:

City of Mesa Environmental Management and Transportation Divisions

Authority for Implementation:

Arizona Revised Statute, Section 9-240: General Powers of Councils
Mesa City Charter, Article 1: Powers of the City
Mesa City Code, Title 8, Chapter 2: Particulate Pollution Sources

Implementation Schedule:

Implementation will be on-going, subject to receipt of funding and funding approval.

Personnel and/or Funding:

Funding is allocated through the annual and five year capital budget process.

Enforcement Program:

Arizona Revised Statute, Section 49-406 grants Maricopa County and the ADEQ the authority to enforce measures identified in the Non-attainment Area Plans.

Monitoring Programs:

The City will submit progress reports to State or County agencies upon request.

98132

When recorded, return to:

Paradise Valley Town Attorney
6401 East Lincoln Drive
Paradise Valley, Arizona 85253

RESOLUTION NUMBER 1084

RESOLUTION TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THEREVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the Maricopa County nonattainment has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN OF PARADISE VALLEY as follows:

SECTION 1. That the Council of the Town of Paradise Valley agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the Town of Paradise Valley commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City/Town agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Mayor and Council of the Town of Paradise Valley, Arizona this 23rd day of September 2004.

Ronald B. Clarke, Mayor

ATTEST:

Lenore P. Lancaster, Town Clerk

APPROVED AS TO FORM

Andrew M. Miller, Town Attorney

CERTIFICATION

I, Lenore P. Lancaster, Town Clerk hereby certify that the foregoing is a full, true and correct copy of Resolution Number 1084 duly and regularly passed and adopted by vote of the Town Council of Paradise Valley at a meeting thereof duly called and held on the 23rd day of September 2004. That said Resolution appears in the minutes of said meeting, and that the same has not been rescinded or modified and is now in full force and effect.

I further certify that said municipal corporation is duly organized and existing, and has the power to take the action called for by the foregoing Resolution.

L Lancaster

Lenore P. Lancaster Town Clerk

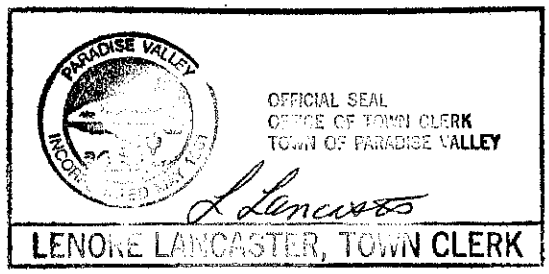


EXHIBIT A

Measure Title: 04-DC-1Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description: The Town of Paradise Valley has increased major and minor arterial street sweeping from once every 6 weeks to once every 2 weeks. The Town of paradise Valley has increased residential street sweeping from once every 12 weeks to once every 8 weeks...

Responsible Agency and Authority for Implementation: This measure has been implemented by the Streets Division of the Public Works Department of the Town of Paradise Valley. Legal authority for this action is provided under A.R.S. 9-240, General Powers of Common Council.

Implementation Schedule: In process at this time.

Level of Personnel and Funding Allocated for Implementation: Two people are assigned street sweeping duties. Funding will be allocated through the Town's annual budget process.

Enforcement Program: A.R.S., Section 49-406 grants Maricopa County and the Arizona Department of Environmental Quality the authority to enforce measures defined in the Nonattainment Area Plan.

Monitoring Program: The Public Works Department of the Town of Paradise Valley will conduct an annual evaluation of the program, and submit an annual report to Maricopa County Environmental Services Department and the Arizona Department of Environmental Quality.

98260

RESOLUTION NO. 04-235

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF PEORIA, MARICOPA COUNTY ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the City of Peoria is located within the metropolitan area of Maricopa County, which has been designated by the Environment Protection Agency ("EPA") as a PM-10 nonattainment area; and

WHEREAS, since the federal air quality standards have not been attained and Maricopa County has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Arizona Department of Environmental Quality ("ADEQ") has prepared a revised State Implementation Plan for the Salt River Area and similar sources in the PM-10 nonattainment area; and

WHEREAS, the EPA is requiring that ADEQ incorporate increased commitments from the State, the County, cities and other entities into ADEQ's increase control measures/plan; and

WHEREAS, Arizona Revised Statute § 49-406 G requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measures as provided in the statute, ordinance, rule; a program for enforcement of the measures; and the level of personal and funding allocated to the implementation of the measures.

THEREFORE, BE IT RESOLVED that the Mayor and City Council of the City of Peoria, Arizona agree to proceed with a good faith effort to implement the enhanced dust control measures identified in *Exhibit A* (attached and incorporated by this reference), subject to necessary and subsequent funding approvals.

BE IT FURTHER RESOLVED that the Mayor and City Council of the City of Peoria, Arizona commit to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various federal agencies, the City of Peoria agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

EXHIBIT A

Measure Title:
04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads.

Measure Description:
Develop and implement a protocol for identifying arterial and collector street locations with excessive levels of dust. That process will include visible dust emissions, land use, traffic volumes, heavy truck traffic, unpaved shoulders, sweeper material history, and other local characteristics. Based on completion of the analysis, the City will implement paved road dust control measures which will include increased street sweeping frequency within the locations targeted with the use of PM-10 efficient sweepers. The frequency on the targeted paved roads would now be swept three times a month instead of the existing once to twice a month frequency.

Also, ongoing training will be established for various field staff to properly document and notify Maricopa County regarding dust and track-out issues from existing property uses and new construction areas.

Responsible Agency:
The City of Peoria Engineering and Public Works Departments.

Authority for Implementation:
-Arizona Constitution, Article 13 Municipal Corporations
-Arizona Revised Statute, Section 9-240 General powers of common council
-Arizona Revised Statute, Section 28-626 Uniform application of laws throughout state; local ordinance or regulations
-Arizona Revised Statute, Section 28-627 Powers of local authorities; definition
-Charter of the City of Peoria, Arizona, Article I, Section 3 Powers of the city
-Peoria City Code, Chapter 23 Streets, Sidewalks and Public Improvements

Implementation Schedule:
The City will implement the enhanced control measures by February 2, 2005 in accordance with available funding. All of the references to funding listed below are estimated.

Personnel and Funding:
1. Utilize the approved Congestion Mitigation Air Quality grant funding of $183,885 for the purchase of one additional PM-10 efficient street sweeper to add to the City's sweeper fleet. This sweeper may not arrive by February 2, 2005 therefore; staff will utilize one PM-10 backup sweeper until this new sweeper is street ready.
2. Budget transfer for the local match of 5.7% of the total invoiced amount for the new street sweeper, approximately $11,115.

3. Contract labor for an Equipment Operator cost for the remaining six (6) months of this fiscal year is $18,000.
4. Sweeper replacement, cost are $19,500 also maintenance and fuel costs are $11,000 for six (6) months of the current fiscal year.
5. Landfill services of the sweeper spoils, estimated at $5,000 for the remaining six (6) months of the current fiscal year.
6. Establish a tracking, notification and documentation process within the Engineering Department for dust and track-out issues regarding private property.

Enforcement Program:
Arizona Revised Statute, Section 49-406 grants Maricopa County and the Arizona Department of Environmental Quality (ADEQ) the authority to enforce measures defined in the Nonattainment Area Plans.

Monitoring Program:
The City of Peoria will submit progress reports on the measures implementation to the Maricopa County Environmental Service Department or ADEQ upon request.

PASSED AND ADOPTED by the Mayor and City Council of the City of Peoria, Arizona this 5th day of October, 2004.

CITY OF PEORIA, an Arizona municipal corporation

Ken C. Forgia, VICE-MAYOR
John C. Keegan Mayor

ATTEST:

for Donna K. Griffith
Mary Jo Kief City Clerk

APPROVED AS TO FORM:

for Cheryl A. Aloo
Stephen M. Kemp City Attorney

98260

City Of Peoria
Targeted Paved Roadways
Dust Control Protocol
September 24, 2004

Targeted Paved Roads with activities that contribute to reentrained dust emissions:

Evaluation methods to identify targeted high dust arterials and collectors:
* Visible high dust emissions on arterial and collector roads have been identified and mapped out by city staff. This effort will be on going including the map adjustments. The areas that have been identified will be swept (3) three times a month.
* Truck traffic has been taken into consideration where sand and gravel operations enter onto paved roads and those effected roads have been identified on the map.
* Unpaved shoulders on arterials have been identified and funding will be requested in the City of Peoria's Capital improvement plan in FY06. Construction will be determined and then implemented based on the approved funding.
* Vacant lots and open areas will be monitored by the appropriate City staff.
* Other activities that produce track-out will also be monitored by city staff.

Enhancement/Improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment area February 2000;
The City of Peoria will increase sweeping frequency from (4) four weeks to (3) times a month on targeted paved roads. We utilize 100% PM-10 certified street sweepers currently. Along with the above- mentioned sweeping frequency, we will have dirt roads that have been identified as high dust emissions chip sealed before February 2, 2005. City staff will track all sweeping and abatement measures by utilizing our automated work order tracking system.

Trackout associated with facilities and activities regulated by Maricopa County. Notification to (MCESD) Maricopa County Environmental Services Department;
The City has in place the AzNPDES Storm Water Management plan that controls construction site runoff. BMP's, Best management practices which will help the city to control trackout violators. The City of Peoria, Engineering will establish a tracking, notification and a documentation process for dust and track out issues regarding private property and call the County to turn in violations that are identified before February 2, 2005. Also review procedures to prevent trespass on vacant lands. All required staff will receive training from county officials on dust and trackout issues, rules and violation notification procedures for rule 310 and 316.

Annual reevaluation of Protocol;
The City of Peoria, Engineering and Public Works will meet prior to February 2, each year to reevaluate the Protocol.

CITY OF PHOENIX
2004 PROTOCOL & IMPLEMENTATION PLAN
FOR
PAVED STREETS WITH POTENTIAL FOR DUST EMISSIONS

PURPOSE:

This document was prepared in response to City of Phoenix Council Resolution #21114 which defines new City of Phoenix measures to reduced dust pollution (PM-10). The Resolution was adopted by the City Council on June 16, 2004. This document includes:

A) Protocol for identifying streets with high potential for dust deposition.
B) Identification of targeted paved streets.
C) Implementation plan.
D) Review of previous street sweeping commitments.
E) Coordination with Maricopa County enforcement.
F) Re-evaluation schedule.

Resolution #21114 includes: Measure #04-DC1 - "Street Sweeping and Other Controls for Road Dust," which states that the City will:

> Develop and implement a process for identifying arterial and major collector street segments with excessive levels of dust. Examples of factors that may be used to identify targeted streets include: visible dust emissions, land use, traffic volume, heavy duty truck traffic, unpaved shoulders, air quality monitoring data, and other characteristics.
>
> Based upon completion of the analysis, the City will implement paved street dust control measures which may include increased street sweeping frequency within the targeted areas, targeted use of PM-10 efficient sweepers, notifications to Maricopa County regarding track-out, and other dust control measures.

A. PROTOCOL

The following protocol will be used to identify streets which may experience increased potential for dust emissions. Paved arterial and collector streets will be identified based upon the criteria listed below.

- Traffic volume: Streets with greater traffic volume have a higher potential for dust emissions. Dust can be generated from tire wear as well as from the action of the vehicle stirring up dust on the pavement or adjacent shoulders. Arterial and collector streets are considered to have a higher potential for dust emissions based upon traffic volume.

- Heavy-duty truck traffic: Arterial and collector streets with higher levels of heavy-duty truck traffic have a higher potential for dust from the larger tires and greater weight. In addition, the larger vehicle profile causes greater air currents which generate relatively larger volumes of dust from paved and unpaved portions of the roadway.

- Unpaved shoulders: Arterial and major collector streets with unpaved shoulders may have higher potential for dust emissions due to higher levels of silt carried onto the street from trackout, wind and rain erosion, as well as the air currents from traffic.

- Air quality monitoring data: Data from air quality monitors help identify the areas which have consistently higher PM-10 levels.

- Visible dust emissions: Areas of visible dust emissions can generally be linked to increases in paved street emissions. While some portion of visible dust may remain suspended as PM-10, larger particles settle back onto the pavement where they are pulverized by traffic and are later re-suspended as finer particles.

- Staff observation: Street maintenance staff may be solicited periodically for their observations regarding the locations of paved streets with high soil and dust deposition. These observations may be submitted during routine staff meetings and other less formal processes. Written surveys may also be used.

- Adjacent land use: Adjacent land uses may contribute to dust deposition on paved streets. Potential land uses of concern include stationary industrial/earthmoving facilities regulated by MCESD, industrial A-1 and A-2 Zoning Designations, concentrations of construction sites, and the stabilization status of the high silt areas in the dry river bed.

B. IDENTIFICATION OF TARGETED STREETS

Based upon the protocol defined above, the boundaries for the targeted area have been determined to be:

Van Buren Street, Baseline Road, 10th Street, and 59th Avenue

Summary of Protocol Findings: The following findings were considered in selection of the target area for dust control measures on paved streets.

- The arterial and collector streets in this area generally have lower traffic volumes similar arterial and collector streets throughout the City (2002 Major Traffic Flow Map: Average Weekday). However, many portions of the area have higher levels of heavy-duty truck traffic based upon the concentration of industries in the A1 and A-2 Zoning designations (General Plan Land Use Map).

- Within the City of Phoenix, 15 of the 160 miles of unpaved shoulders are within the target area. This represents a higher concentration of unpaved shoulders than in other areas of the City. This area has approximately 0.47 miles of unpaved shoulders/sq. mile, while the remainder of the City has approximately 0.31 unpaved shoulders/sq. mile. It is important to note that essentially all shoulders in the target area have been stabilized with four-foot sections of asphalt and/or granite materials (Phoenix 2000 Dust Control Plan for Unpaved Streets, Shoulders and Alleys).

- The 2004 Revised PM-10 Plan for the Salt River documents that three of the four air quality monitors in the target area have elevated 24-hour PM-10 levels (Plan TSD: Table 1-1). These monitors include 43rd Ave, Durango, and Salt River. PM-10 levels in the target area also exceed the annual-average health standard.

- Visible dust emissions were documented in extensive surveys conducted by ADEQ and the County for the 2004 Revised PM-10 Plan for the Salt River Area. Observed emissions were found to be from industrial sources, materials handling unpaved haul roads and trackout and unpaved shoulders (Plan TSD, Figure 4-1). Each of these sources is more concentrated in the target area.

- The land uses in the area includes large concentrations of A-1 and A-2 Zoning which allows heavy industrial land uses including rock and gravel operations, used auto parts businesses, metal recycling etc. (General Plan of Phoenix, Land Use Map).

- Within the City of Phoenix, nine of the ten industrial sources of fugitive dust regulated by an air quality permit from the County are located in the target area. As shown is Attachment A, four of these facilities emit 13-38 tons/year, while the one facility located in northern Phoenix emits only 5.4 to 6.6 tons/year.

- Trackout from residential and development projects is also a potential source of dust. However, those sources are located throughout the

Phoenix area and do not appear to be concentrated in the target area. We anticipate that construction track-out emissions will be reduced through recent changes to Maricopa County Rule 310 and enhanced County enforcement.

- Trackout from industrial land uses is one of the key sources of dust emissions in the target area. Although trackout from these sources is regulated by Maricopa County, Phoenix will initially implement additional sweeping as discussed above. The need for additional sweeping will be re-evaluated based upon the successful increased enforcement program proposed by Maricopa County.

C. IMPLEMENTATION PLAN

Resolution #21114 includes a commitment for the City to develop and implement dust control measures for paved streets. Targeted streets are identified through the protocol provided above.

The 2004 Revised PM-10 Plan State Implementation Plan for the Salt River Area identifies street sweeping as the recommended approach for addressing road dust (Plan, page 85). In response, the City will increase street sweeping on arterial and collector streets in the targeted area. Sweeping schedules will increase from the current 14-day sweeping cycle to a 7-day cycle.

This program will be supported by the purchase of two PM-10 effiecient street sweepers as defined in the Resolution. In addition, two sweeper operator positions have been created. This dust control measure, and the protocol to identify streets with a high potential for dust emissions, will be subject to periodic review as noted in Section F below.

D. REVIEW OF PREVIOUS STREET SWEEPING COMMITMENT

The commitments in City of Phoenix Resolution #21114 represent an enhancement over previous City of Phoenix commitments for street sweeping. The most recent street sweeping commitment by the City was to participate in a feasibility study of PM-10 Efficient Sweepers conducted by the Maricopa Association of Governments (MAG). This commitment is defined in Resolution #19141, adopted by Council in 1998 and referenced in the 1999 and 2000 MAG revisions to the Serious Area Particulate Plan (Plan, pages 7-170).

The City of Phoenix Resolution #21114 adopted in June, 2004, enhances that commitment by adding two additional sweepers to the City fleet. Implementation

of this commitment is expected to double the street sweeping frequency in the targeted area.

It is also important to note that the 2000 MAG Plan also stated that MAG would allocate up to $3.8 million dollars in federal funds to assist in the purchase of PM-10 efficient sweepers (Plan, pages 7-179). Even though this Plan did not include a specific commitment for the City to purchase sweepers, Phoenix has purchased more than 30 sweepers over the past several years with a combination of Federal and City funds. As a result, the City has replaced the entire fleet of street sweepers with PM-10 efficient sweepers.

E. COORDINATION WITH MARICOPA COUNTY ENFORCEMENT

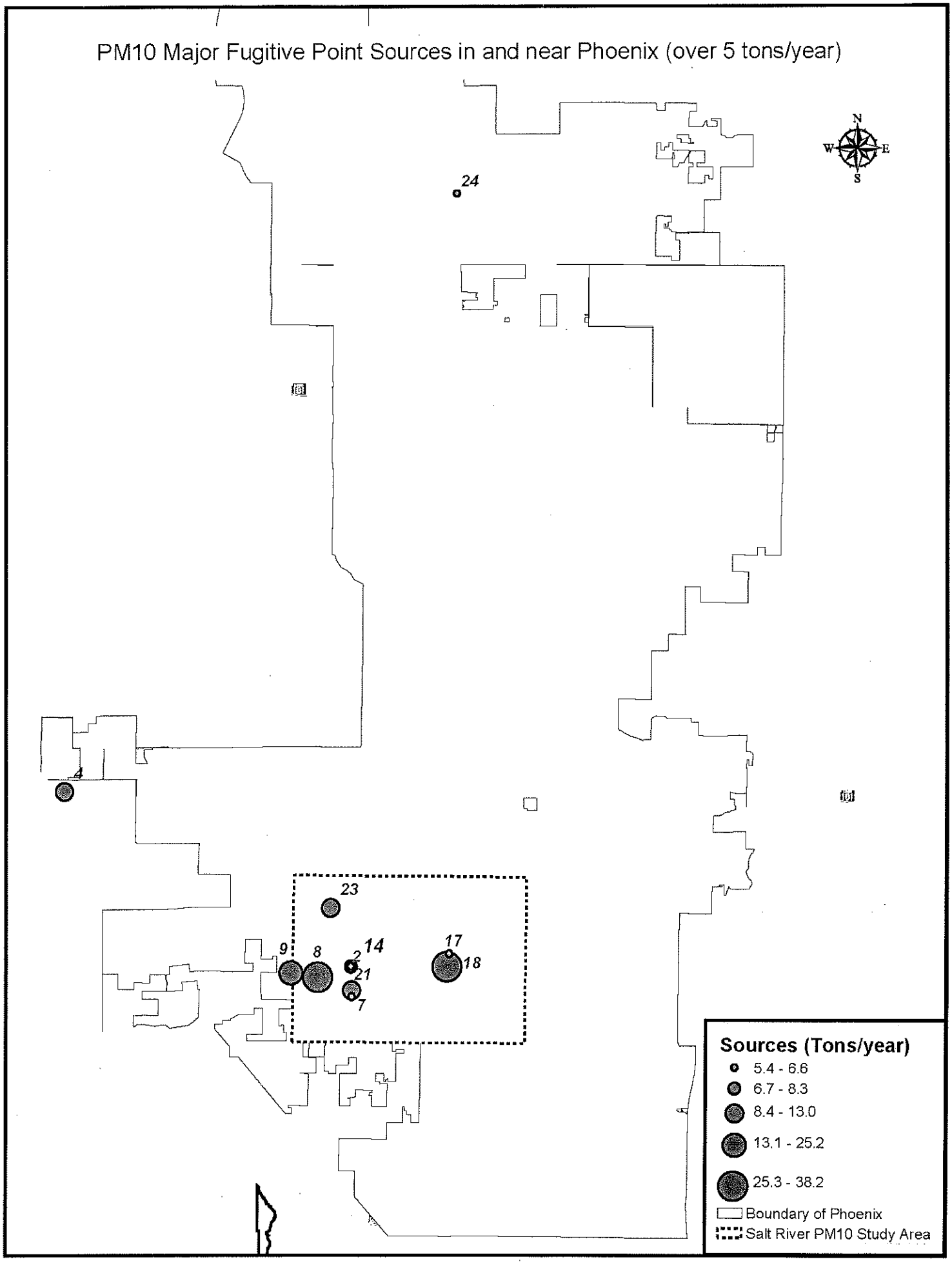
The OEP will continue to train field staff of the Street Transportation Department and the Parks and Recreation Department on trackout provisions of Maricopa County Rule 310. Training includes instruction on how to identify potential trackout violations and encourages staff to report potential violations to the County for enforcement. Approximately 400 employees have been trained each year for the past several years. OEP will also continue to refer complaints about dust to the County.

F. RE-EVALUATION SCHEDULE

Historic air quality data shows that the targeted Salt River Area defined above has consistently higher levels of PM-10 when compared to other areas in the City of Phoenix and the entire Valley (Plan, Appendix A). This trend is expected to continue in the near future. In addition, trends for traffic volumes, the relative proportion of heavy duty truck traffic, industrial land use designations, the location of the existing industries with fugitive dust emissions, and dry river bed are not expected to change significantly in the long term. Therefore, the protocol for identifying targeted streets, and the related implementation plan, will be reviewed by 2010 with subsequent reviews on a 5-year basis, unless a different timeframe is determined to be appropriate.

R:\Air\Streetssweepingalleysshoulder\Streetsweepingprotocol Sept 2004.Doc

ATTACHMENT A



10/638

ADEQ
AIR QUALITY DIVISION
04 DEC 20 PM 1:10

7447 East Indian School Road
Scottsdale, AZ 85251

December 16, 2004

Lhamo LeMoine
Air Quality Planning Section
Maricopa County Department of Environmental Quality
1101 N. Washington Street
Phoenix, AZ 85007

RE: City of Scottsdale Dust Emission Commitments and Protocol

Dear Lhamo,

On December 6, 2004 the City of Scottsdale Mayor/Council passed Resolution # 6588 authorizing implementation of measures to reduce reentrained dust emissions from targeted paved roads in Scottsdale. Attached is a signed copy of that resolution, along with a commitment measure and protocol. The resolution, commitment measure and protocol follow the Maricopa Association of Governments' (MAG) model language and form.

The City of Scottsdale has proactively addressed particulate pollution in our city for a number of years. The city has the highest frequency street sweeping schedule of any valley city and the city's fleet of sweepers uses all PM-10 certified units. In addition, the city has had an aggressive program for paving and dust control in place for a number of years.

If you have any questions regarding these submittals, please contact me at 480-312-7889 or via e-mail at lperson@ScottsdaleAZ.gov

Thank you,

Larry D. Person
Sr. Environmental Coordinator

COPY

RESOLUTION NO. 6588

A RESOLUTION OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY ARIZONA, AUTHORIZING IMPLEMENTATION OF MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, pursuant to the Clean Air Act the Maricopa County nonattainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statues 49-406(G) requires that each agency that commits to implement a control measure contained in the implementation plan describe that commitment in a resolution adopted by the governing body which specifies: its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measure; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SCOTTSDAL, MARICOPA COUNTY, ARIZONA, as follows:

Section 1. The City of Scottsdale agrees to proceed with a good faith effort to implement the measures identified in Exhibit A, which is part of this resolution, to reduce reentrained dust emissions from targeted paved roads in the revised PM-10 State Implementation Plan for the Salt River Area.

Section 2. The City of Scottsdale commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Council of the City of Scottsdale, Maricopa County, Arizona this 6th day of December, 2004.

City of Scottsdale, an
Arizona municipal corporation

Mary Manross
Mary Manross
Mayor

ATTEST:

Carolyn Jagger
City Clerk

APPROVED AS TO FORM:

Joseph R. Bertoldo
City Attorney

Measure Title:

04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description: The City of Scottsdale has developed a protocol (Attachment #1) to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The protocol:

- Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads;

- Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000;

- Addresses trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed; and

- Provides for the annual reevaluation of the protocol.

Responsible Agency and Authority for Implementation: The City of Scottsdale Municipal Services Department, Field Services Division, is responsible for implementing this control measure. The City of Scottsdale is authorized to implement this measure by the following:

Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council
Arizona Constitution, Article 13, Section 2
A.R.S., Section 28-626: Uniform Application of Laws Throughout State
A.R.S., Section 28-627: Powers of Local Authorities
City of Scottsdale Charter, Sections 1-3, "Powers of City"
City of Scottsdale Municipal Services Department paved road maintenance policies

Implementation Schedule: The protocol will be provided to the Maricopa County Environmental Services Department (MCESD) and the Arizona Department of Environmental Quality (ADEQ) and will be implemented by February 2, 2005. One additional PM-10 efficient street sweeper has been added to the city's fleet and is currently operational.

Level of Personnel and Funding Allocated for Implementation: The FY 2004/2005 City of Scottsdale budget includes funding and adequate resources to operate seven (7) PM-10 efficient street sweepers and staff to operate all seven sweepers. This represents an increase of one (1) sweeper more than the 1999 city commitments, an increased sweeping frequency and additional sweeping procedures.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the City of Scottsdale. The reevaluation will be submitted to MCESD and ADEQ, by February 2 of each year upon request, beginning in 2006. The City will also submit progress reports on measure implementation to MCESD or ADEQ, upon request.

Protocol

to Reduce Reentrained Dust Emissions from Targeted Paved Roads

Arterials and collectors may exhibit "high dust" characteristics from time to time due to unscheduled activities on adjacent unimproved properties. Field Services Division will receive notice of these dust deposits on a complaint basis through existing processes from Police Dispatch, city staff or citizens using telephone or online Internet notification forms. Field Services Division Street Sweeping unit operates street sweepers 7 days per week. An available street sweeping unit will respond to the "high dust" location and remove the dust within 24-hours of notification with a PM-10 certified street sweeper.

Arterials and collectors are routinely swept weekly. This protocol is an enhancement over the prior commitment (1999) due to the 24-hour response to reported "high dust" on these roads. Downtown streets are now swept 3 times per week in lieu of the prior schedule of 2 times per week.

Facilities depositing dust on roadways will be required to reinforce track out measures and their associated activities will be reported to Maricopa County when rule violations are observed.

This protocol will be reevaluated on an annual basis to ensure the timely and effective removal of 'high dust" from arterials and collectors was provided within the specified 24-hour period. Specific locations may be identified at the time of the annual reevaluation for inclusion into an intensified routine sweeping schedule.

Attachment #1

#36

SURPRISE
ARIZONA

CITY OF SURPRISE
COUNCIL AGENDA ACTION FORM

Meeting Type: Regular Meeting **Council Meeting Date:** 9/23/2004

Submitting Department: Public Works **Contact Person:** Jim Nichols

District: City Wide **Internal:** _____

☐ Consent ☑ Regular ☐ Public Hearing ☐ Report Only

Agenda Wording:
Consideration and action on Resolution #04-163. A resolution to implement measures to reduce the reentry of dust emissions from targeted paved roads in the revised PM-10 state implementation plans for the Salt River Area.

Motion:
I move to approve Resolution #04-163

Background:
Surprise as a member of MAG (Maricopa Association of Governments) is being asked to develop commitments in conjunction with the attainment goals of the revised PM-10 State Implementation Plan for the Salt River Area prepared by Arizona Department of Environmental Quality (ADEQ). The measure involves the identification of targeted "high dust" paved roads and then implementation of appropriate controls.

The Salt River PM-10 plan is designed to meet Environmental Protection Agency (EPA) requirements to implement additional control measures and demonstrate attainment of the twenty-four hour PM-10 standard by December 31, 2006.

It is important to note that the commitments established by the city will be legally binding and must be reasonably attainable in the long-term as well as able to reduce PM-10 emissions.

Financial Impact Statement:
Any associated operating costs of this item have been included in the current year base budget or have been planned for the following fiscal year.

Attachments:
Resolution #04-163 and Exhibit A.

Signatures of Submitting Officers:

Mayor / Council

James R Nichols
Department Head/Designee

Legal Review

Budget Authorization

Kathy B Reece
City Manager/Designee

Human Resources (If Applicable)

City Clerk's Office Only:

Council Action:
Motion/Second

Results:

Distribution After Council Meeting:

Shafer		For	6
Elkins	S	Against	0
Bails	m	Passed	✓
Sullivan		Failed	
Arismendez		Continue	
Johnson		Tabled	
Allen		Absent	1 (T.A.)

City Clerk's Office agenda

Meeting Requirements:

☐ Powerpoint ☐ Overhead (Elmo) ☐ Flip Chart ☐ White Board ☐ Easel

Presentation Speaker Names (spelling and titles for TV captions):

RESOLUTION #04-163

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF SURPRISE, ARIZONA, TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County nonattainment area has been classified as a Serious Area for PM-10 Particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes Section 49-406.G requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specified its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED by the Mayor and Council of the City of Surprise, Arizona, that:

Section 1. The City of Surprise agrees to proceed with a good faith effort to implement the measures identified in Exhibit A, which is part of this Resolution. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City of Surprise agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

APPROVED AND ADOPTED this 23 day of September, 2004.

Joan Shafer, Mayor

Attest:

Sherry Aguilar, City Clerk

Approved as to form:

Jeffrey Blilie, City Attorney

Yeas: Mayor Shafer, Vice-Mayor Arismendez, Council Members; Bails, Elkins, Johnson & Sullivan.

Nays:

EXHIBIT A
To Resolution No.: 04-163

Measure Title: 04-DC-1 Reducing Reentrained Dust Emissions from Targeted Paved Roads

Measure Description: The City of Surprise will develop and implement a program (protocol) to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. This program will include the identification of arterial and major collector street segments with excessive levels of particulate matter. A number of factors may be used to identify targeted streets such as visible dust emissions, land use, traffic volumes, heavy duty truck traffic, presence of unpaved shoulders, and the like. The accumulated data will be compiled and analyzed to determine appropriate courses of action.

Based upon the results of the analysis, the City will implement paved road dust control measures which may include increased street sweeping frequencies within the targeted areas; targeted use of PM-10 efficient sweepers, enhanced reporting procedures to Maricopa County regarding track-out, and other dust control measures.

Responsible Agency and Authority for Implementation: This measure will be implemented by the City of Surprise Public Works Department, Streets Division. Legal authority for this action is provided under Section 9-240 of the Arizona Revised Statutes

Implementation Schedule: Applications for federal funds for additional PM-10 efficient sweepers will be submitted in FY2005. Dependent upon success of funding requests, additional sweeper purchases will be pursued. The program to reduce reentrained dust emissions from paved roads will be submitted to Maricopa County and the Department of Environmental Quality by September 30, 2004 and implementation will occur on or before February 2, 2005.

Level of Personnel and Funding Allocated for Implementation: Additional funding may be allocated based on success of federal funding requests and future needs.

Enforcement Program: A.R.S., Section 49-406, grants Maricopa County and the Arizona Department of Environmental Quality the authority to enforce measures defined in the Nonattainment Areas Plans.

Monitoring Program: The City will submit progress reports to appropriate State or County agencies upon request.

PROTOCOL

To Resolution No.: 04-163

The City of Surprise will identify the collector and arterial streets under our authority for implementation of our sweeping operation. Arterials and collectors will be swept at intervals compatible with the city's resources. However, the city will continually strive to maintain or increase the total lane miles of streets that are swept at regular intervals. In addition, the streets will be evaluated regularly to determine target roads that may require additional sweeping frequencies based on the level of particulate matter generated along specific segments.

Surprise has seen tremendous growth in both population and land area. In the past 10 years, the city's population has grown by over 500% while our land area has increased by approximately 10,000 acres. This growth has led to a significant increase in the city's transportation network. In order to reduce particulate emissions, we will sweep considerably more lane miles of paved roads than existed when the original commitment was made. In addition, we will focus our efforts on the arterial and collector streets that are the primary contributors to particulate emissions to ensure the greatest PM-10 reduction is achieved.

Surprise will enhance its enforcement and abatement reporting program associated with trackout events, in concert with Maricopa County. The city will actively pursue the notification of trackout violations to the county. In addition, the city will establish strict protocol to guide the notification process.

On an annual basis, the city will conduct an internal audit of the established protocol, contained herein, to determine its effectiveness in the reduction of reentrained dust emissions from targeted paved roads. This review will focus on the means and methods followed by the city relative to the success of the PM-10 reduction program. Based on the results of the audit, adjustments to the protocol may be made to improve the overall success of the program. Results of audit and the adjusted protocol, if appropriate, will be submitted to Maricopa County and the Arizona Department of Environmental Quality.

98259

ADEQ
AIR QUALITY DIVISION
04 OCT 13 AM 10: 28

City of Tempe
P. O. Box 5002
31 East Fifth Street
Tempe, AZ 85280
480-350-8371
www.tempe.gov

Tempe

Public Works Department

October 7, 2004

Ms. Nancy C. Wrona, Director
Air Quality Division
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, AZ 85007

RE: Certified Copy of Resolution No. 2004.84

Dear Ms. Wrona:

Enclosed is a certified copy of Resolution No. 2004.84 stating Tempe's intent to implement measures to reduce re-entrained dust emissions from targeted paved roads in the Revised PM-10 State Implementation Plan for the Salt River Area.

If you have any questions, please call me at (480) 350-8949.

Sincerely,

John Osgood

John Osgood, Deputy Public Works Manager, Streets and Traffic Operations
City of Tempe

98259

City of Tempe
P. O. Box 5002
31 East Fifth Street
Tempe, AZ 85280

www.tempe.gov

Tempe

CERTIFICATION

I, Kathy Matz, City Clerk for the City of Tempe, Maricopa County, Arizona, do hereby certify the attached to be a true and exact copy of Resolution No. 2004.84 which was passed and adopted by the City Council of the City of Tempe on the 30th day of September, 2004.

Dated this 1st of October, 2004.

Kathy Matz
City Clerk
City of Tempe

98259

RESOLUTION NO. 2004.84

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF TEMPE, ARIZONA, TO IMPLEMENT MEASURES TO REDUCE RE-ENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the Maricopa County non-attainment has been classified as a Serious Area for PM-10 particulate matter, and

WHEREAS, the Maricopa County non-attainment area continues to record violations of the federal standards for PM-10, and

WHEREAS, the Arizona Department of Environmental Quality ("ADEQ") has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard, and

WHEREAS, additional control measures are required to reduce re-entrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 non-attainment area, and

WHEREAS, the City of Tempe has the authority to adopt the measures contained herein under Article 13, Section 2 of the Arizona Constitution, Title 9 of the Arizona Revised Statutes, and the Tempe City Charter, and

WHEREAS, pursuant to A.R.S. § 49-406(G) each agency that commits to implement a control measure must describe that commitment in a resolution adopted by the governing body, specifying its authority for implementing the measure, the enforcement program, and the level of personnel and funding allocated to the measure's implementation, and

WHEREAS, the City of Tempe desires to commit to proceeding with a good faith effort to implement measures to reduce re-entrained dust emissions from targeted paved roads in the Salt River Area within City of Tempe borders;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF TEMPE as follows:

Section 1. That the Mayor and Council of the City of Tempe commits to proceeding with a good faith effort to implement the measures identified in Exhibit A which is part of this Resolution, and

Section 2. That the Mayor and Council of the City of Tempe commits to implement the measures as scheduled and with the funding sources identified subject to the continuing

availability of funding through the lending programs or processes of various state and federal agencies.

PASSED AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF TEMPE, ARIZONA, this 30th day of September, 2004.

Mayor

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

98259

EXHIBIT A

CITY OF TEMPE IMPLEMENTATION PLAN FOR MEASURES TO REDUCE RE-ENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS

I. Reducing Re-entrained Dust Emissions from Targeted Paved Roads (Measurement No. 04-DC-1).

A. Measure Description: The City of Tempe has developed a track out enforcement program to reduce re-entrained dust emissions from paved roads that typically experience a high level of soil deposition. This measure, and the following measures 04-DC-2, and 04-DC-03, constitutes an enhancement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-attainment Area, February, 2000.

- Two Environmental Investigators dedicated to environmental site inspections will review construction sites for signs of track-out onto paved City streets and will enforce for violations of Tempe track-out ordinances. Tracking of sediment or other materials off-site by vehicles is prohibited by Tempe City Code §§ 19-50 and 12-125. Construction sites in Tempe, regardless of size, will be inspected at least once during construction using a "drive-by" approach. Such "drive–by" inspections will consist of a scan of property perimeters for signs of track-out.

- The City maintains a hotline (480) 350-2811 which allows citizens and staff to report any observed environmental problems, including track-out.

- The City of Tempe shall develop and distribute to construction sites a brochure of Best Management Practices (BMPs) for construction activities that shall identify activities relative to track-out and methods of correcting such activities.

B. Responsible Agency and Authority for Implementation: The City of Tempe Environmental Services Division is responsible for implementing this control measure

C. Implementation Schedule: The enhanced track-out enforcement program is underway. The program will be fully developed and implemented by February 2, 2005, with inspections starting in select areas in North-Central Tempe, and being phased in other parts of Tempe.

D. Level of Personnel and Funding Allocated for Implementation: There are adequate resources contained in the FY 2005 budget to fund two existing Environmental Investigators to spend 10% of the time for each Investigator on construction site inspections.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports on measure implementation to MCESD or ADEQ, upon request.

II. Supplemental Targeted Street Sweeping (Measure No. 04-DC-2).

A. Measure Description: To further strengthen Tempe's commitment to reduce re-entrained dust emissions from targeted paved roads as outlined in Measure No. 04-DC-1, the Public Works Department will develop strategies for identifying and abating heavy track-out areas and other excessive dust situations. These strategies may include:

- Response based street sweeping in heavy dust areas caused by construction work or other situations. PM-10 certified sweepers will be utilized.
- Increased street sweeping frequencies on arterial or major collector streets, when excessive dust situations have been identified.
- Increased street sweeping frequencies in areas when indicated as necessary by air quality monitoring data.

B. Responsible Agency and Authority for Implementation: The City of Tempe Streets and Traffic Operations division of the Public Works Department is responsible for implementing this control measure.

C. Implementation Schedule: The targeted supplemental sweeping is underway and may be modified as more analysis is conducted.

D. Level of Personnel and Funding Allocated for implementation: There are adequate resources contained in the FY 2005 budget. Additionally, the 2004-05 budget includes $367,800 for the purchase of two PM-10 certified streets sweepers.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports to State or County agencies upon request.

III. City of Tempe Alley Reconstruction Program – Enhanced Dust Control on Paved Streets (Measure No. 04-DC-3).

A. Measure Description: The City of Tempe has developed the Alley Reconstruction Program which returns unpaved alleys to their original grade. The finished surface includes a minimum of two inches of recycled asphalt which reduces dirt and dust track out onto city streets.

- When the alleys are reconstructed, the finished surface, recycled asphalt, reduces track out onto city streets.

- While the alleys are under reconstruction, dirt may be tracked out onto paved streets. Existing protocol requires daily monitoring of these situations and supplemental street sweeping and/or other dust control measures as necessary.

B. Responsible Agency and Authority for Implementation: The City of Tempe Streets and Traffic Operations division of the Public Works Department is responsible for implementing this control measure.

C. Implementation Schedule: The targeted supplemental sweeping is underway and will be modified as appropriate; the city has committed to the alley reconstruction effort, which is ongoing.

D. Level of Personnel and Funding Allocated for implementation: There are adequate resources contained in the FY 2005 budget.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports to State or County agencies upon request.

Memorandum

Public Works Department

Tempe

Protocol for Reducing Re-entrained Dust Emissions from Targeted Paved Roads

September 30, 2004

This protocol will guide the city of Tempe as it identifies targeted arterial and major collector streets for enhanced dust control efforts, addresses track out with facilities and activities regulated by Maricopa County, and reevaluates these and other PM-10 related measures.

Measures

I. Reducing Re-entrained Dust Emissions from Targeted Paved Roads (Measurement No. 04-DC-1).

A. Measure Description: The City of Tempe has developed a track out enforcement program to reduce re-entrained dust emissions from paved roads that typically experience a high level of soil deposition. This measure, and the following measures 04-DC-2, and 04-DC-03, constitutes an enhancement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-attainment Area, February, 2000.

- Two Environmental Investigators dedicated to environmental site inspections will review construction sites for signs of track-out onto paved City streets and will enforce for violations of Tempe track-out ordinances. Tracking of sediment or other materials off-site by vehicles is prohibited by Tempe City Code §§ 19-50 and 12-125. Construction sites in Tempe, regardless of size, will be inspected at least once during construction using a "drive-by" approach. Such "drive–by" inspections will consist of a scan of property perimeters for signs of track-out.

- The City maintains a hotline (480) 350-2811 which allows citizens and staff to report any observed environmental problems, including track-out.

- The City of Tempe shall develop and distribute to construction sites a brochure of Best Management Practices (BMPs) for construction activities that shall identify activities relative to track-

out and methods of correcting such activities.

- This measure is an enhancement over the commitments made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-Attainment Area, February, 2000. It is a new measure focused on targeted paved roads; it was not part of any formalize commitment.

B. Responsible Agency and Authority for Implementation: The City of Tempe Environmental Services Division is responsible for implementing this control measure

C. Implementation Schedule: The enhanced track-out enforcement program is underway. The program will be fully developed and implemented by February 2, 2005, with inspections starting in select areas in North-Central Tempe, and being phased in other parts of Tempe.

D. Level of Personnel and Funding Allocated for Implementation: There are adequate resources contained in the FY 2005 budget to fund two existing Environmental Investigators to spend 10% of the time for each Investigator on construction site inspections.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports on measure implementation to MCESD or ADEQ, upon request.

II. Supplemental Targeted Street Sweeping (Measure No. 04-DC-2).

A. Measure Description: To further strengthen Tempe's commitment to reduce re-entrained dust emissions from targeted paved roads as outlined in Measure No. 04-DC-1, the Public Works Department will develop strategies for identifying and abating heavy track-out areas and other excessive dust situations. These strategies may include:

- Response based street sweeping in heavy dust areas caused by construction work or other situations. PM-10 certified sweepers will be utilized.

- Increased street sweeping frequencies on arterial or major collector streets, when excessive dust situations have been identified.

- Increased street sweeping frequencies in areas when indicated as necessary by air quality monitoring data.

- This measure is an enhancement over the commitments made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-Attainment Area, February, 2000. It is a new measure focused on targeted paved roads; it was not part of any formalize commitment.

B. Responsible Agency and Authority for Implementation: The City of Tempe Streets and Traffic Operations division of the Public Works Department is responsible for implementing this control measure.

C. Implementation Schedule: The targeted supplemental sweeping is underway and may be modified as more analysis is conducted.

D. Level of Personnel and Funding Allocated for implementation: There are adequate resources contained in the FY 2005 budget. Additionally, the 2004-05 budget includes $367,800 for the purchase of two PM-10 certified streets sweepers.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports to State or County agencies upon request.

III. City of Tempe Alley Reconstruction Program – Enhanced Dust Control on Paved Streets (Measure No. 04-DC-3).

A. Measure Description: The City of Tempe has developed the Alley Reconstruction Program which returns unpaved alleys to their original grade. The finished surface includes a minimum of two inches of recycled asphalt which reduces dirt and dust track out onto city streets.

- When the alleys are reconstructed, the finished surface, recycled asphalt, reduces track out onto city streets.

- While the alleys are under reconstruction, dirt may be tracked out onto paved streets. Existing protocol requires daily monitoring of these situations and supplemental street sweeping and/or other dust control measures as necessary.

- This measure is an enhancement over the commitments made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Non-Attainment Area, February, 2000. It is a new measure focused on targeted paved roads; it was not part of any formalize commitment.

B. Responsible Agency and Authority for Implementation: The City of Tempe Streets and Traffic Operations division of the Public Works Department is responsible for implementing this control measure.

C. Implementation Schedule: The targeted supplemental sweeping is underway and will be modified as appropriate; the city has committed to the alley reconstruction effort, which is ongoing.

D. Level of Personnel and Funding Allocated for implementation: There are adequate resources contained in the FY 2005 budget.

E. Enforcement Program: Maricopa County and ADEQ have the authority to enforce measures identified in the non-attainment area plans.

F. Monitoring Program: The City will submit progress reports to State or County agencies upon request.

*34. This is a public hearing for approval of a resolution amending Appendix A of the Tempe City Code relating to *irrigation* rates.

DOCUMENT NAME: 20040930cacc01.pdf **MISCELLANEOUS FEES (0210-05)** RESOLUTION NO. 2004.80

APPROVED

*35. This is a public hearing for approval of a resolution amending Appendix A of the Tempe City Code relating to *water* rates.

DOCUMENT NAME: 20040930cacc02.pdf **MISCELLANEOUS FEES (0210-05)** RESOLUTION NO. 2004.81

APPROVED

*36. This is a public hearing for approval of a resolution amending Appendix A of the Tempe City Code relating to *wastewater* rates.

DOCUMENT NAME: 20040930cacc03.pdf **MISCELLANEOUS FEES (0210-05)** RESOLUTION NO. 2004.82

APPROVED

37. Request approval of a resolution authorizing the Mayor to enter into an Amended and Restated Intergovernmental Agreement between the Arizona Board of Regents (acting for and on behalf of Arizona State University) and the City of Tempe.

DOCUMENT NAME: 20040930dscm01.pdf **ARIZONA STATE UNIVERSITY (0109-02)** RESOLUTION NO. 2004.83

APPROVED

38. Request approval of a resolution implementing measures to reduce dust emissions from targeted paved roads for the revised PM-10 State Implementation Plan for the Salt River Area.

DOCUMENT NAME: 20040930pwjo01.pdf **AIR POLLUTION ADMINISTRATION (0604-01-02)** RESOLUTION NO. 2004.84.

APPROVED

39. Request approval of a resolution approving the Amended City of Tempe Firefighters Unit Memorandum of Understanding ("Amended MOU") and authorizing its execution.

DOCUMENT NAME: 20040930hrds01.pdf **FIRE – MEET & CONFER (0303-08-01)** RESOLUTION NO. 2004.79

97759

ADEQ
AIR QUALITY DIVISION
04 SEP 30 PM 2:40

CITY OF TOLLESON

RESOLUTION NO. 947

A RESOLUTION OF THE MAYOR AND CITY COUNCIL OF THE CITY OF TOLLESON, MARICOPA COUNTY, ARIZONA, IMPLEMENTING MEASURES TO REDUCE REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENTATION PLAN FOR THE SALT RIVER AREA.

WHEREAS, the Maricopa County non-attainment area has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County non-attainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, the City of Tolleson has previously committed to implement measures to reduce particulate pollution in Resolutions Nos. 364, 788, 794, and 808.

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF TOLLESON as follows:

SECTION 1. That the Council of the City of Tolleson agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the City of Tolleson commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the City agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Council of the City of Tolleson this 28th day of September 2004.

Adolfo F. Gámez, Mayor

ATTEST:

Chris Hagen-Hurley, City Clerk

APPROVED AS TO FORM:

Scott W. Ruby, City Attorney

Measure Title: 04-DC-1; Reducing Reentrained Dust Emissions form Targeted Paved Roads.

Measure Description: The City of Tolleson will develop and implement a process to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. The process will:

- Identify targeted "high dust" arterials and collectors and increase sweeping frequencies with PM-10 efficient sweepers to reduce the reeintrained dust emissions from these roads;

- Address paved roads and the frequency of sweeping of these roads. The City has fulfilled its previous years PM-10 commitment by dealing with unpaved roads, shoulders, vacant lots, etc. Thus, the City will concentrate more on paved roads in the nonattainment area. Moreover, streets staff is finally at full capacity which will allow for us to increase the frequency of sweeping in "high dust" areas whereas before it was difficult to free up personnel to do so. Furthermore, the City will make a stern effort to constantly inform Maricopa County of any track out violations from construction sites within the City of Tolleson ;

- Address track out associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed;

- Reevaluate the process annually and provide a copy to ADEQ and MCESD.

Responsible Agency and Authority for Implementation: The City of Tolleson, Public Works Department, is responsible for implementing this control measure. The City of Tolleson is authorized to implement this measure by the following:

Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Council
Arizona Constitution, Article 13, Section 2
A.R.S., Section 28-626: Uniform Application of Laws Throughout State
A.R.S., Section 28-627: Powers of Local Authorities

Implementation Schedule: The process for identifying targeted "high dust" arterials and collectors and increasing sweeping frequencies in these areas will be implemented by February 2, 2005.

Level of Personnel and Funding Allocated for Implementation: The FY 2004-2005 City budget includes two streets personnel which allow the flexibility for one to increase the frequency of sweeping with a MAG approved PM-10 efficient sweeper.

Enforcement Program: A.R.S. Section 49-406 grants Maricopa County and ADEQ the authority to enforce measures identified in the nonattainment area plans.

Monitoring Program: A reevaluation of the process for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the City of Tolleson. The reevaluation will be submitted to MCESD and ADEQ, by each February 2 of each year, beginning in 2006. The City will also submit progress reports on measures implementation to MCESD or ADEQ, upon request.

Town of Youngtown
12030 Clubhouse Square
Youngtown, Arizona 85363

January 27, 2005

Cathy Jordan
Air Quality Planning Section
Arizona Department of Environmental Quality
1101 W. Washington Street
Phoenix, AZ 85007

Dear Ms Jordan:

Please find enclosed the Town of Youngtown's Resolution to implement measures to reduce reentrained dust emissions which includes Attachment A which commits to a protocol the Town has already begun practicing and expects to continue into the future.

While we are the smallest municipality in the Valley (1.3 sq miles) we still understand the importance of all of us working together to meet the PM-10 standards especially in the nonattainment area. If there is additional information needed in regards to Youngtown don't hesitate to call anytime.

Sincerely,

Mark Fooks
Town Manager

cc: Jo Crumbaker
Jesse Mendez

enclosure

RESOLUTION 05-01

RESOLUTION TO IMPLEMENT MEASURES TO REDUCE REENTRAINED DUST EMMISSIONS FROM TARGETED PAVED ROADS IN THE REVISED PM-10 STATE IMPLEMENATION PLAN FOR THE SALT RIVER AREA

WHEREAS, the Maricopa County nonattainment has been classified as a Serious Area for PM-10 particulate matter; and

WHEREAS, the Maricopa County nonattainment area continues to record violations of the federal standards for PM-10; and

WHEREAS, the Arizona Department of Environmental Quality has prepared a revised State Implementation Plan for the Salt River Area to address continued violations of the 24-hour PM-10 standard; and

WHEREAS, additional control measures are required to reduce reentrained dust emissions from paved roads in the Salt River Area and similar sources elsewhere in the PM-10 nonattainment area; and

WHEREAS, Arizona Revised Statutes 49-406 G. requires that each agency that commits to implement a control measure describe that commitment in a resolution adopted by the governing body which specifies its authority for implementing the measure as provided in statute, ordinance, or rule; a program for enforcement of the measures; and the level of personnel and funding allocated to the implementation of the measure.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN OF YOUNGTOWN as follow:

SECTION 1. That the Council of the Town of Youngtown agrees to proceed with a good faith effort to implement the measures identified in Exhibit A which is part of this resolution.

SECTION 2. That the Council of the Town of Youngtown commits to implement the measures as scheduled and with the funding sources identified. Recognizing, however, that the availability of necessary funding may depend on the funding programs or processes of various state and federal agencies, the Town agrees to consider modifications of the funding or schedules for implementation actions, if necessary.

PASSED AND ADOPTED by the Mayor and Council of the Town of Youngtown, Arizona this 20th day of January, 2005.

Mayor

ATTEST:

Shaunna Lee-Rice, Town Clerk

APPROVED AS TO FORM:

Susan Goodwin Town Attorney

TOWN OF YOUNGTOWN
EXHIBIT A
Reducing Reentrained Dust Emissions from Targeted Paved Roads 2005

The Town of Youngtown, Arizona has developed a protocol to reduce reentrained dust emissions from paved roads that typically experience a high level of soil deposition. We are the smallest municipality in Maricopa county with only 1.3 sq miles of land and 15 miles of paved roads, but are intent on participating at the highest level possible to reduce reentrained dust emissions from our paved roads.

THE PROTOCOL:

- **Identifies targeted "high dust" arterials and collectors and increases sweeping frequencies with PM-10 efficient sweepers to reduce the reentrained dust emissions from these roads;**
- **Describes how the protocol constitutes an enhancement or improvement over the commitment made in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000;**
- **Addresses trackout associated with facilities and activities regulated by Maricopa County, by notifying the County when rule violations are observed, and**
- **Provides for the annual reevaluation of the protocol.**

RESPONSIBLE AGENCY: The Town of Youngtown **Public Works Department**, is responsible for implementing this control measure. The Town is authorized to implement this measure by the following:
Arizona Revised Statutes (A.R.S.), Section 9-240, General Powers of Town Councils
Arizona Constitution, Article 13, Section 2
A.R.S. Section 28-626: Uniform Application of Laws Throughout State
A.R.S. 28-627: Powers of Local Authorities
Youngtown General Plan Chapter 7 Environmental Element
Youngtown Ordinance 8.28 Dust Control
Resolution 05-01 Resolution to implement measures to reduce reentrained dust emissions from targeted paved roads in the revised PM-10 state implementation plan for the Salt River Area

IMPLEMENTATION SCHEDULE: The protocol will be provided to the Maricopa County Environmental Services Department and the Arizona Department of Environmental Quality by September 30, 2004 and will be implemented by February 2, 2005.The Town has purchased a new PM-10 street sweeper that is now in use.

PERSONNEL AND FUNDING FOR IMPLEMENTATION: In November of 2003 the Town purchased its new PM-10 street sweeper for $133,424.59 which replaced a 1965 mobil sweeper. The Town has a full-time public works employee trained and assigned to street sweeping to do all streets at least once a month. The Town has hired a new Code Compliance Officer who reports violations to Maricopa County and who

works with the Building Inspector to assure that a dust control permit and storm water runoff permit, as well as any other needed permits are done before issuing a Town building permit. The Town also budgets money each year to spray the alleys still not paved with a dust control retardant.

ENFORCEMENT PROGRAM: A.R.S. Section 49-406 grants Maricopa County and Arizona Department of Environmental Quality the authority to enforce measures identified in the nonattainment area plans.

MONITORING PROGRAM: A reevaluation of the protocol for reducing PM-10 emissions from "high dust" paved roads will be conducted annually by the town of Youngtown. The reevaluation will be submitted to Maricopa County Environmental Services Department and Arizona Department of Environmental Quality by February 2 of each year, beginning in 2006. The Town will also submit progress reports on measure implementation to MCESD or ADEQ, upon request.

Town of Youngtown
12030 Clubhouse Square
Youngtown, Arizona 85363

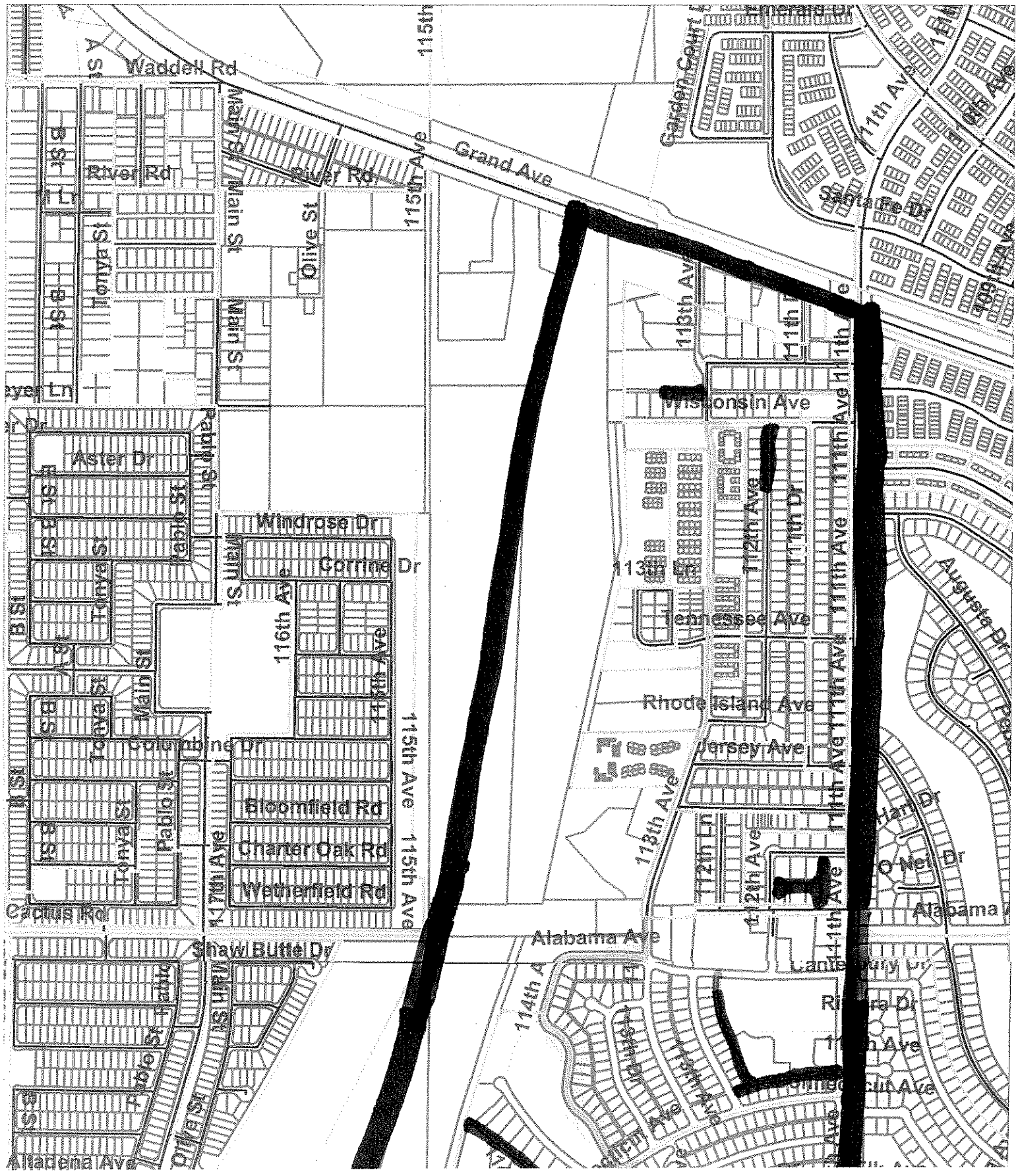
EXHIBIT A
TOWN OF YOUNGTOWN PROTOCOL FOR REENTRAINED DUST EMISSIONS FROM TARGETED PAVED ROADS

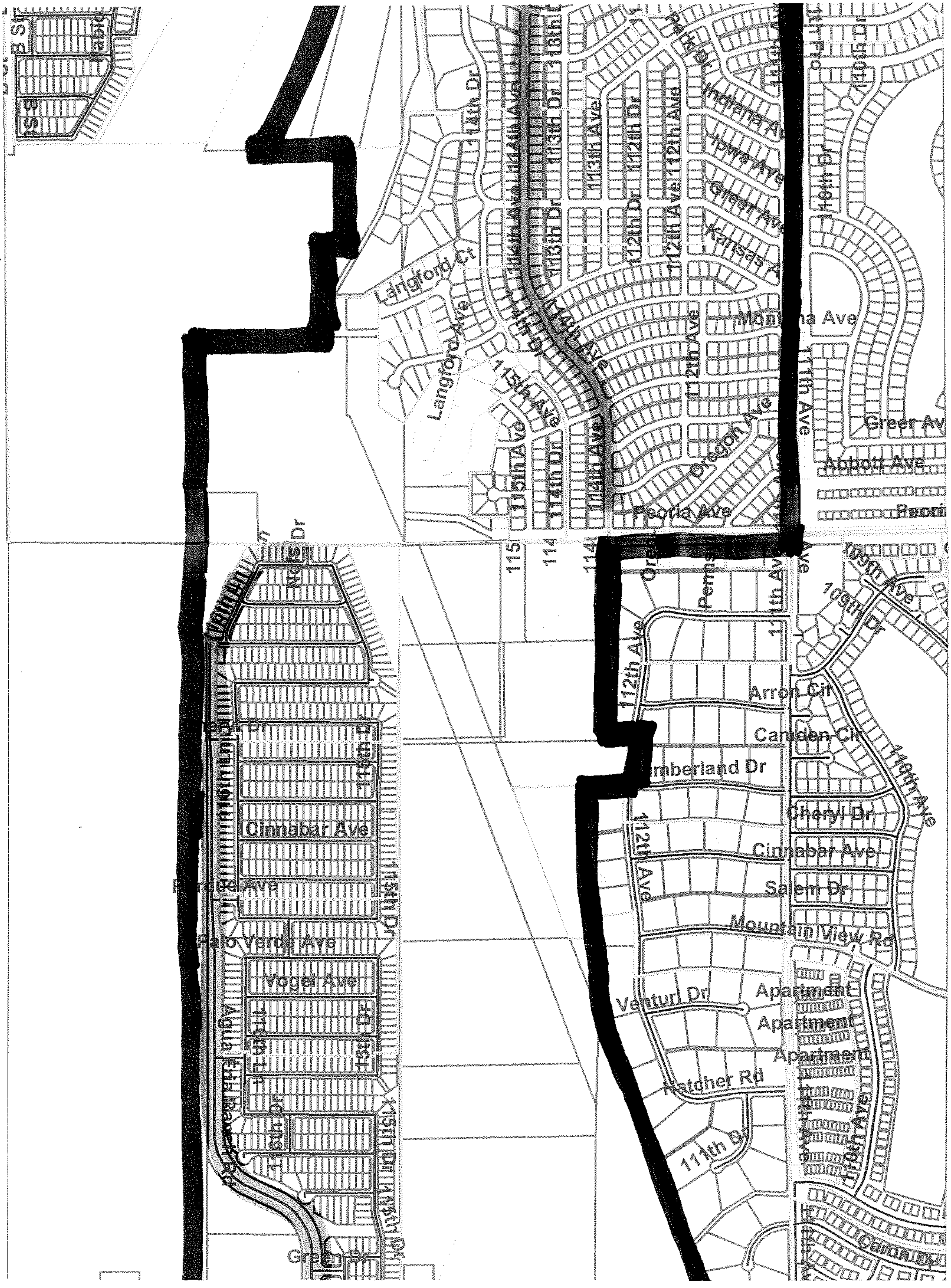
1. TAB A shows the major arterial streets in Youngtown that will be regularly swept with our new PM-10 sweeper purchased in November of 2003.
2. TAB A also shows the newly paved alleys paved in Youngtown.
3. The Towns Highway User Revenue Funds budget contains a full time street employee who regularly sweeps the 22 miles of roadway in Youngtown at least once a month.
4. Frequency of sweeping has tripled since 1998.
5. The Town has approved its first General Plan (see TAB B) which includes environmental concerns.
6. The Town has hired a full-time Code Enforcement Officer who routinely enforces all code violations which includes week-end hours.
7. The Town has purchased and maintains 8 bus stops on 111th Avenue from Grand Avenue to Peoria Avenue supplementing the Bus services in the area.
8. The Town enforces storm water permits and dust control permits before issuing a Town permit for work.
9. The Town successfully applied for and completed a Storm water erosion control project on Illinois Avenue and the Agua Fria River in 2004.
10. The Town paved the parking lot of Schleifer Park in 2004.
11. The Town continues to have alternate work schedule (4 10 hour shifts) for the Police Department
12. The Town has a Dust Control Ordinance Chapter 8.23 (see TAB C)

County Parcels

TAB A

Town of Youngtown Az





Langford Ct
Langford Ave
114th Dr
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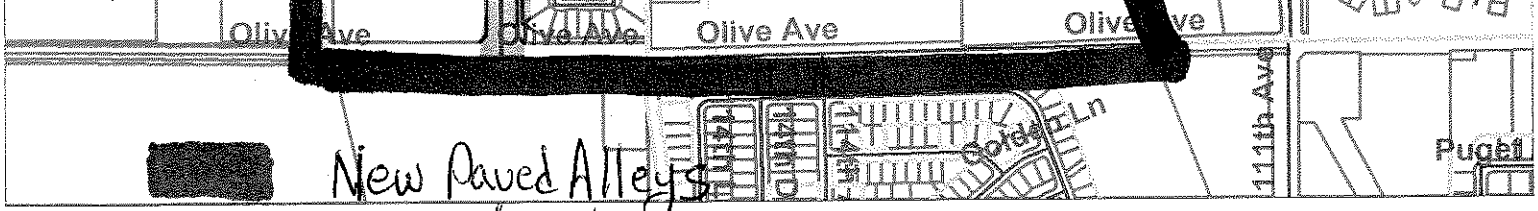
113th Dr
113th Ave
112th Dr
112th Ave
115th Ave
115th Dr
Indiana Ave
Iowa Ave
Greer Ave
Kansas Ave
Montana Ave
Oregon Ave
Peoria Ave
111th Ave
110th Dr
Abbott Ave
109th Ave
109th Dr
110th Ave
Arron Cir
Camden Cir
Cumberland Dr
Cheryl Dr
Cinnabar Ave
Salem Dr
Mountain View Rd
Venturi Dr
Apartment
Hatcher Rd
111th Dr
Purdue Ave
Palo Verde Ave
Vogel Ave
Agua Fria Ranch Rd
116th Dr
115th Dr
Green Dr
Caron Dr



New Paved Alleys

Town Limits

Peoria Avenue Arterial

Agua Fria Ranch Parkway Arterial

113th Avenue Arterial

114th Avenue Arterial

TAB B

YOUNGTOWN GENERAL PLAN

2003

Prepared for the Town of Youngtown by:
HDR Engineering, Inc.
3200 East Camelback Road, Suite 350
Phoenix, AZ 85018
Phone: 602/522-7700 Fax: 602/522-7707

7: ENVIRONMENTAL ELEMENT

Introduction

The purpose of the Environmental Element is to address the impacts of development on air and water quality and the conservation of natural resources. This element was prepared in accordance with A.R.S. §9-461.05.

Current Situation

Maricopa County is classified as a Serious Area, as defined by Environmental Protection Agency (EPA) standards, for all carbon monoxide (CO), ozone, and particulate matter (PM-10). It is also a Non-Attainment Area for ozone.

Carbon Monoxide

Based upon the 1996 base year emissions inventory, the primary sources of carbon monoxide are: On-road Mobile (automobiles and trucks) 53.9 percent; Non-road Mobile (utility lawn and garden, construction, farm, and recreational equipment, aircraft, and locomotives), 43.5 percent; Area Sources (residential wood and industrial fuel combustion, on-site incineration, and open burning) 2 percent; and Point Sources (industrial, manufacturing and electrical power generation facilities) 0.6 percent.[8]

In order to reduce carbon monoxide, the State and local governments committed to implement a wide variety of air quality measures. Key measures included in the plan are: California Air Resources Board (CARB) Phase 2 Reformulated Gasoline During the Winter Months; Phased-in Cutpoints for the I/M 240 Vehicle Emissions Test; Traffic Synchronization; Intelligent Transportation Systems; One Time Waiver from the Vehicle Emissions Test; Deferring Emissions Associated with Government Activities; and other Transportation Control Measures.[6]

PM-10

Based upon the 1995 base year regional emissions inventory, the primary sources of PM-10 are: Non-road Sources (construction/earthmoving dust, construction trackout, non-road engine exhaust, and construction windblown dust) 43.0 percent; On-road Sources (paved road dust, unpaved road dust, and on-road vehicle exhaust) 32.9 percent; Area Sources (disturbed vacant land and agricultural

[8] Revised MAG 1999 Serious Area Carbon Monoxide Plan For The Maricopa County Nonattainment Area, Executive Summary

windblown dust, agricultural dust, other area sources, and residential wood burning) 22.6 percent; and Point Sources 1.5 percent.[9]

The key measures in the Revised MAG 1999 Serious Area Particulate Plan for PM-10 used for attainment include: Strengthening and Better Enforcement of Fugitive Dust Control Rules; Reduce Particulate Emissions from Unpaved Roads and Alleys; Reduce Particulate Emissions from Unpaved Parking Lots; Reduce Particulate Emissions from Vacant Disturbed Lots; PM-10 Efficient Street Sweepers; Curbing, Paving, or Stabilizing Shoulders on Paved Roads; Paving, Vegetating, and Chemically Stabilizing Unpaved Access Points Onto Paved Roads; PM-10 Episode Thresholds; Restaurant Charbroiler Controls; Clean Gasoline (long-term and winter fuel reformulation); Pre-1988 Heavy-Duty Diesel Commercial Vehicle Standards; and Coordinate Traffic Signal Systems.[7]

In 1997, under Town Resolution No. 97-15, the Town of Youngtown agreed to implement measures in the MAG 1997 PM-10 and Carbon Monoxide Plan as follows, 1) to implement an alternative work schedule to decrease vehicle usage (Measure 97-TC-13 and 97-NR-7), 2) to curb, pave or stabilize shoulders on paved roads (Measure 97-DC-4), and 3) to implement frequent routine sweeping or cleaning of paved roads (Measure 97-DC-5).

In 1998, under Town Resolutions No. 98-15 and 98-05, the Town agreed to the additional following measures to reduce PM-10 particulates (see Table 10, Measures Adopted to Reduce PM-10 Particulates).

Table 10, Measures Adopted to Reduce PM-10 Particulates

Resolution 98-15	
Measure	
98-FP-1	Adopt a fireplace ordinance (Ordinance No. 98-15)
98-DC-7	Implement a plan to stabilize unpaved roads and alleys
98-DC-8	Implement a plan to stabilize unpaved shoulders of paved targeted arterials
98-DC-9	Reduce particulate emissions from unpaved parking lots
98-DC-10	Reduce particulate emissions from vacant disturbed lots
98-DC-12	If economically feasible, the Town will purchase PM-10 efficient street sweeping units
Resolution 98-05	
	The Town will participate in a regional program led by the County to reduce particulate pollution

Source: Revised MAG 1999 Serious Area Particulate and Carbon Monoxide Plans for the Maricopa County Nonattainment Area, Commitments for Implementation, Vols. 3 & 4

[9] Revised MAG 1999 Serious Area Particulate Plan For PM-10 For The Maricopa County Nonattainment Area, Executive Summary

Flooding

The Town works with the Flood Control District of Maricopa County to protect the community from flooding. The Town is impacted by the Agua Fria 100-year floodplain. While the Town does not oppose removing land from the 100-year floodplain of the river, it works with the Flood Control District of Maricopa County to determine appropriate actions to prevent flooding and development within the 100-year floodplain of the Agua Fria River.

Landfills

The closed El Mirage landfill is located on the west bank of the Agua Fria River and is visible from Youngtown. While El Mirage has no plans for the landfill, Youngtown residents would like it removed or redeveloped.

Future Trends

The practices that have been established so far should improve the air and water quality for the Town. As the region and the Town continue to increase in population, efforts to maintain and enhance these programs should continue.

Planning Issues

- As Youngtown continues to develop, efforts must continue to ensure that the 100-year, 2-hour storm event is fully contained within new developments.
- As new areas are annexed, existing County and private roads will need to comply with PM-10 and Carbon Monoxide commitments.
- Youngtown may consider working with El Mirage on removing or redeveloping the El Mirage landfill.

Goals, Objectives and Policies

GOAL 1: **LOCATE LAND USES TO PREVENT NEGATIVE IMPACTS TO YOUNGTOWN RESIDENTS**

Objective 1.1: **Potentially hazardous land uses which may include, but are not limited to, landfills, power generating stations, and gas stations are located a safe distance from residential development.**

Policy 1.1.1: Prohibit uses that could negatively impact the safety and health of the residents next to existing residential development.

Policy 1.1.2: Require all development that has either documented, or the potential to have, air, water or other environmental impacts that may affect the health and safety of Youngtown residents to mitigate these impact at their own expense.

Policy 1.1.3: Work with the City of El Mirage to redevelop or remove the El Mirage landfill.

GOAL 2: CONTINUE TO MEET FEDERAL, STATE AND COUNTY AIR AND WATER QUALITY STANDARDS.

Objective 2.1: Participate in the Maricopa Association of Governments and Maricopa County efforts to meet federal and state air and water quality standards.

Policy 2.1.1: Continue to participate in the AzTech Model Deployment Initiative.

Objective 2.2: Reduce PM-10 and Carbon Monoxide.

Policy 2.2.1: Encourage ridesharing through maintenance of the employee rideshare database and providing preferential parking for carpools.

Policy 2.2.2: Continue to pave alleys and unpaved roads each year as funds allow.

Policy 2.2.3: Require all newly developed or redeveloped parking areas and driveways to have a paved surface.

Policy 2.2.4: Work with the City of El Mirage to monitor the use of the landfill, which has become an air quality nuisance due to recreational vehicle using the area.

GOAL 3: PROTECT RESIDENTS OF YOUNGTOWN FROM EXCESSIVE NOISE IMPACTS.

Objective 3.1: Discourage rezoning requests for residential development in high noise areas.

Policy 3.1.1: Require mitigation measures on new residential development areas to achieve compliance with local, state and federal noise standards.

Policy 3.1.2: Provide buffers between high noise areas and other development.

Policy 3.1.3: Monitor Luke Air Force Base flight patterns to ensure Youngtown remains unaffected by noise contours.

TAB C

Chapter 8.28

DUST CONTROL

Sections:

8.28.010 Definitions.

As used in this chapter:

"Dust free" means that the parking surface has been paved with concrete or asphalt paving material approved by the building inspector.

"Dust proof" means that the parking surface has been chemically stabilized and/or covered with gravel as approved by the building inspector. (Ord. 98-16 § 1 (part); prior code § 11-5(G))

8.28.020 Dust control measures generally.

A. All improved parking surfaces for new construction shall be dust free and shall be completed before the town will issue an occupancy permit.

B. The owners of all existing unpaved parking areas greater than five thousand (5,000) square feet shall cause them to be paved with a material acceptable to the building inspector no later than January 1, 2000.

C. Vehicle parking and/or use on any lot of greater than five thousand (5,000) square feet is prohibited unless the lot is dust proofed. Both the owners and operators may be cited for violation of this chapter.

D. The owners and operators of any lot on which vehicles will be parked for the purposes of any special event shall dust proof the lot prior to, during and subsequent to the special event. No special use permit shall be issued until such dust proofing is in place. (Ord. 98-16 § 1 (part); prior code § 11-5(A)—(D))

8.28.030 Dust control during weed abatement activities.

The following dust control measures must be applied when weed abatement activities are occurring. The owner of such vacant lot shall:

A. First apply dust suppressants to the total surface area subject to disturbance prior to or during weed abatement;

B. Prevent or eliminate material tracked out onto paved surfaces;

C. Immediately apply dust suppressants, gravel compaction or alternative control measures following weed abatement to the entire disturbed surface area such that the surface is stabilized.

Any owner or operator of a disturbed vacant lot that remains vacant for more than fifteen (15) days must either establish a ground cover vegetation on all disturbed surface areas, apply a dust supplement to all disturbed surface areas, restore to a natural state, or apply and maintain surface gravel to stabilize all disturbed surfaces. (Ord. 98-16 § 1 (part); prior code § 11-5(E))

8.28.040 Violations—Penalties.

A. Any property owner found to be in violation of this chapter shall be guilty of a petty offense subject to a fine of not more than one hundred dollars ($100.00). A property owner found guilty of an additional violation of this ordinance within one year shall be guilty of

a misdemeanor subject to a jail sentence not to exceed ten (10) days and a fine not to exceed two hundred dollars ($200.00).

B. Any operator of a motor vehicle who parks or drives on any lot in violation of this chapter is guilty of a civil traffic offense and if found responsible, shall pay a fine not to exceed one hundred dollars ($100.00). (Ord. 98-16 § 1 (part); prior code § 11-5(F))

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Appendix E

2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999-2004 Implemented PM_{10} MSM/BACM

CITY/AGENCY	Miles of Roads Paved/Stabilized	Miles of Alleys Paved/Stabilized	Miles of Curbing Added	Miles of Shoulders Stabilized	Number of PM_{10} Sweepers	Number of Parking Lots Paved	Number of Parking Lots Stabilized	
							Number	ft^2
Apache Junction			5	1	2			
Avondale	2	7	29	28	3	(122,591 ft^2)		203,360
Buckeye			3					
Carefree			1	11		2	2	
Cave Creek		23						39,000
Chandler	1	76		4	8		4	360,000
El Mirage					1			
Fountain Hills	187	1	374	9				
Gilbert	47		47	120	4		24	5,638,841
Glendale	2	23		60	7	All City lots		
Goodyear	7	5	65			All City lots		
Mesa	37	90	20	23	3			435,600
Paradise Valley	4		4	1	2	2 (88,000 ft^2)	2	49,560
Peoria	7	3	26	9	5	5		433,858
Phoenix[1]	687	225	728	498	32	57	118	
Queen Creek	7		7	7		26		
Scottsdale	37	87	99	53	5	3	7	
Surprise	4				4			105,367
Tempe	1242	128	6		6			492,623
Tolleson	2	16	2	8				144,600
Youngtown		9	28	8	1		8	
MAG					79			
Maricopa Cty	640			439	4			
ADOT					2	45		31,320
Total	**2,913**	**723**	**1,444**	**1,279**	**168**		**165**	**2,859,129**

[1] Data received from City of Phoenix on 05/13/2005

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES **Applicable to Sweeping of Primary and Secondary Paved Roads**	
NEW MEASURES	**MEASURE DESCRIPTION**
#44 – NO CREDIT TAKEN	**Vacuum Systems for Crack Seal Operations**: Arizona Legislature passed SB 1427, which requires cities, towns, and counties in Area A to acquire or utilize vacuum systems or other dust removal technology to reduce particulates attributable to conventional crack sealing operations, as existing equipment is retired, beginning January 1, 1999 (A.R.S. § 9-500.04 or 49-474.01). No commitments to this measure in 1999 MAG SIP.
#50	**Purchase/Use of PM_{10}-Efficient Street-Sweepers**: All participating jurisdictions made commitments to review the results of the MAG PM_{10}-efficient street sweeping test to evaluate the technological and economic feasibility of potential purchase, lease, contract, of PM_{10}-efficient street sweepers, dependent upon certification of PM_{10}-efficient street sweepers by CARB, SAE, and SCAQMD and results from MAG PM_{10}-efficient street sweeping test.
EXISTING MEASURES	**MEASURE DESCRIPTION**
#71	**Frequent, Routine Sweeping/Cleaning of Pavement**: Jurisdictions made various commitments: one jurisdiction commits to coordinating street sweeping with uncontained trash pick-up; six jurisdictions committed to a specific or improved, sweeping schedule; twelve jurisdictions made no new commitments, or committed to enforcement of current controls.

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
AVONDALE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Coordinating sweep schedule with uncontained trash pick-up, FY 1997-1998		
Owns one street-sweeper, contracts for others; conducts routine sweeping of residential and major streets		City bought 3 PM_{10}-efficient sweepers and has applied for funds to replace the non-compliant sweeper with compliant for backup. City sweeps 18.5 miles of 4-lane roads twice monthly; 37 miles of 4-lane roadway curbs weekly; 340 miles of 2-lane roads weekly; 680 miles of 2-lane roadway curbs weekly. Sweeping of 4-lane arterials to increase to once every 10 calendar days. City also sweeps paved municipal parking lots at least once a month (Civic Center Complex weekly).
APACHE JUNCTION		
		City currently owns 2 PM_{10}-efficient street-sweepers, and sweeps streets once a month.
BUCKEYE: 1997/1998 COMMITMENTS - #50, #71 - No enhanced commitments		
Sweeps streets on routine basis		City owns 1 Sweeper and will purchase second FY06. Re-evaluation of “hig dust” paved roads by 2/2 annually.

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
CAREFREE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility, and consider purchase, lease, or contract of PM_{10}-efficient street sweepers. #71 – No enhanced commitments		
Contracts to have one mile of streets swept bi-monthly		Continues to contract to have 1 mile of streets swept bi-monthly. Wash crossings and intersections swept as needed. Not on CMAQ-funded PM_{10}-efficient sweeper list due to minimal roadway; no credit taken in modeling.
CAVE CREEK: 1997/1998 COMMITMENTS - #50, #71 - No enhanced commitments		
Owns two water trucks used to flush streets, rents sweepers; sweeps paved roads twice a year		Contract with C & S to sweep main arterial Cave Creek Road twice per year. No modeling credit claimed.
CHANDLER: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Committed to its recently enhanced sweeping schedule, currently implemented		
Owns five street-sweepers; sweeping residential streets once per month, arterial streets every 14 days. City code requires developers to keep streets clean of construction debris, charges developers refundable street cleanup fee and may levy an assessment against it to cover the costs of cleanup.		City has replaced its fleet of 8 street-sweepers with 8 PM_{10}-efficient units. All primary and secondary arterials swept once every 14 days; residential streets swept once every 30 days. Trouble areas are swept in response to complaints. Identified 5 arterials and 3 collectors as High Dust; these arterials are swept 3 times a month and these collectors 2 times a month.
EL MIRAGE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - No enhanced commitments		
Contracts with vendor for quarterly street-sweeping service; sweeps 9.5 miles of streets each year, public streets swept quarterly.		1 PM10–efficient sweeper owned, second to be purchased with CMAQ funds and sweeping frequency increased. Contractor/Developer applying for haul permit shall supply a copy of haul route and supply a street sweeper at ingress/egress and route locations.
FOUNTAIN HILLS: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - No enhanced commitments		
Owns one street sweeper which will be replaced by December 1998; ongoing program to sweep streets to keep roadways free of sand and debris.		Town replaced its old street-sweeper in 1998 with an Athey mobile sweeper and has proposed to purchase a PM_{10}-efficient sweeper in the town budget for FY 2005-2006 to replace the 1998 sweeper. Town also ordered 2nd dump truck to eliminate need for sweeper to return to street yard when hopper is full; this will increase sweeping

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
		mileage. First dump truck will be tarped and site-located for emptying street sweepings. Town sweeps arterials every 15 days; sweeping on collectors will increase from every 45 days to every 30 days; 187 miles of paved roads. High dust is at wash crossings without culverts after storms, focus of increased sweeping.
GILBERT: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - No enhanced commitments		
Owns three street sweepers (including two Athey mobile sweepers); sweeps once per month, downtown streets are swept once per week. Continued enforcement of dust nuisance regulations.		FY05 budget will add 1 PM_{10} efficient sweeper and 1 driver to total 5 such sweepers. Arterials, collectors and residential streets swept monthly (1,745 paved lane miles). High Dust roads are identified by complaints and by sweeper driver logbooks, in addition to those with unpaved shoulders and entrances from unpaved roads or unpaved alleys. High dust roads to be swept at least 2 times every 4 weeks.
GLENDALE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - No enhanced commitments		
Owns eight street-sweepers; city currently uses mechanical broom sweepers to sweep streets.		City purchased 7 PM_{10}-efficient street-sweepers; 1 is rarely used, due to operational problems. Arterial and half mile streets are swept every 2 weeks; residential streets are swept every 4 weeks. Total of 5 linear paved miles.
GOODYEAR: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
Owns one street-sweeper, contracts for other sweepers; city currently sweeps on daily basis using mechanical broom sweeper.		City will purchase and deploy 2 PM_{10} efficient street sweepers to replace 2 non-compliant sweepers by February 2006. Increased sweeping frequency from every 3 weeks to every 2 weeks. 260.7 center lane miles of paved roads. High Dust areas include low water road crossings after storm events, construction activity areas, and high volume traffic areas.
GUADALUPE		
		1 PM10-efficient sweeper to be purchased with CMAQ funds.

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
MESA: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Considering an ordinance requiring use of PM_{10}-efficient street sweepers on private property.		
Owns five street sweepers for residential streets, contracts for arterial street sweeping; city currently conducts periodic sweeping (including water spraying) of residential and major arterials.		City owns 5 street-sweepers, of which 3 are PM_{10}-efficient, for sweeping residential streets; City sweeps residential streets every 6 weeks (784 paved miles). City contracts for arterial street-sweeping done every 2 weeks (432 paved miles). High Dust streets will be identified by heavy-duty truck traffic, unpaved shoulders, and overall traffic volume. Street sweeper operators to identify trackout areas for enforcement by County personnel.
PARADISE VALLEY: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – Considering sweeping every street every six weeks		
Owns three sweepers, no leases, no contracts; city currently sweeps every street every three months.		Town currently owns 2 PM_{10}-certified street-sweepers. Town increased sweeping frequency on all major and minor arterials from every 6 weeks to every 2 weeks; on all residential streets from once every 12 weeks to every 8 weeks. 140 miles paved roads.
PEORIA: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Implementing a bi-weekly sweeping schedule by January 5, 1998		
City sweeps on monthly basis.		City has 5 PM_{10} efficient sweepers, will add 1 PM_{10}-efficient street sweeper, and will increase use of backup PM_{10} sweeper until it arrives. 437 center-line miles of paved roads. Downtown streets are swept twice weekly. Increased sweeping of residential and collectors from every 7 weeks to every 5 weeks. City staff identified and mapped High Dust arterial and collector roads to be swept 3 times per month instead of every 4 weeks; focus is on truck traffic from sand and gravel operations onto paved roads.
PHOENIX: 1997/1998 COMMITMENTS - #50 - Participating in MAG Feasibility Study and will prepare Council recommendations within six months of completion of MAG Feasibility Study final report. #71 - Committed to coordinating sweeping with uncontained trash pick-up in FY 1997-1998		
Owns 21 street sweepers, sweeping approximately 7,100 curb miles of city streets; currently conducts routine sweeping of residential and major streets.		City owns 32 street-sweepers; 32 are PM_{10}-compliant. City sweeps 1,730 curb miles of arterials and high-volume collector streets; sweeps all major arterial and collector streets every 14 days, and conducts routine sweeping of residential streets.

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
QUEEN CREEK: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Committed to sweeping all curb and gutter streets four times yearly, including additional 12 lane-mile passes of sweeping per year, implemented no later than January 1, 1998; will assign one person to manage contract administration and inspection		
Owns no sweepers, leases none, and currently selecting a contractor for sweeping.	Still contracts for sweeping services.	Town currently contracts 1 non-PM_{10}-efficient street-sweeper for routine street-sweeping and added CMAQ funds to purchase 1 PM_{10}-efficient sweeper since February 2004. Town sweeps 15 miles of paved roads with curb and gutter once a month.
SCOTTSDALE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
Owns six sweepers, two of which are vacuum units; currently sweeps all curbed miles of residential, commuter, and downtown streets according to schedule: 52 times per year (commuter); 104 times per year (downtown); 18.5 times per year (residential).		City owns and operates 2 pre-PM_{10}-efficient Tymco Regenerative Air sweepers; 2 PM_{10}-efficient Tymco Regenerative Air sweepers; and 3 PM_{10}-efficient Air Bear Broom sweepers (1 more than 1999 commitment). City sweeps arterial and commercial streets weekly (52 times per year), downtown business area three times per week (156 times per year) increased over prior 2 times per week, and residential areas 18 times per year. Response within 24 hours after reported High Dust. 13.8 miles newly paved roads.
SURPRISE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
Owns one Elgin “Crosswind” vacuum-based street sweeper cleans all city-owned streets bi-monthly; currently sweeps once every ten days; heavily-traveled arterials adjacent to new construction will be swept more frequently.		City will own 4 PM_{10}-efficient street sweepers by 2/2/05 and increase sweeping frequency to every 4 weeks for arterials and every 6 weeks for collectors. and lane miles; land area increased by 10,000 acres and population quintupled in past decade. High Dust focus is on arterials and collectors.
TEMPE: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
Owns seven sweepers; city routinely sweeps all streets.		City owns 6 PM_{10}-efficient street sweepers in FY05 and 2 non-certified. Increased sweeping frequency on 12 miles of arterials to every 8 days; 40 miles of residential and 6 miles of collectors every 4 weeks. High Dust focus when shown necessary by air quality monitoring data, and in response to complaints caused by construction work or other causes.

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
TOLLESON: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 - Committed to sweeping frequency on the 15.3 miles of road in Tolleson corporate limits, considering vacuuming		
Owns one street sweeper; city zoning ordinance (Article VI) requiring street sweeping.		City owns 1 Schwarz 8000 MAG-approved street-sweeper and sweeps 3 times per week (15.3 paved miles). City will buy 1 PM_{10}-efficient sweeper.
WICKENBURG: 1997/1998 COMMITMENTS - #50 - Purchasing a new street-sweeper #71 - No enhanced commitments		
City sweeps all paved streets in jurisdiction.		No CMAQ funding for this municipality. No credit claimed in modeling.
YOUNGTOWN: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
Owns one sweeper, may contract for PM_{10}-efficient street sweeper to sweep 13.25 miles of streets; Town sweeps paved streets monthly.		City owns a 2004 PM10-efficient sweeper to sweep 26.2 curbed miles (both sides of 13.1 miles of paved roadway) and 1.7 miles paved alleys every 30 days.
MARICOPA ASSOCIATION OF GOVERNMENTS (MAG): 1997/1998 COMMITMENTS - #50 - For each fiscal year CMAQ funds are allocated for sweepers, MAG will solicit requests for funding of PM_{10}-certified units from entities in the nonattainment area identifying: the number of centerline miles to be swept, expected frequency of sweeping, and average daily traffic. The data will be collected by facility type for roads to be swept with the PM_{10}-certified units and MAG will estimate the emissions reduction for each sweeper requested and rank requests in priority order of effectiveness for consideration for CMAQ funds. #71 – No enhanced commitments		
In 1998, 1,521 street-sweepers were in use; as of 2001, 38 PM10-efficient street-sweepers had been purchased.	As of November 2001, MAG has purchased a total of 38 PM_{10} - efficient street sweepers from CMAQ and local funds (21 sweepers purchased in fiscal year 2001). MAG coordinated the PM_{10}-Efficient Street Sweeping Test in 2001, and was approved in December 2001. As of March 2002, a total of $10.9 million in CMAQ funds has been authorized or programmed in TIPs to purchase PM_{10}-efficient street sweepers, $5.2 million above previous commitment.	As of December 2004, MAG had purchased 79 PM_{10}-efficient street-sweepers with CMAQ and local funds (7 sweepers purchased in fiscal year 2002; 24 sweepers purchased in fiscal year 2003; 16 approved for purchase in 2004). As of November 2003, a total of $13.1 million in CMAQ funds had been authorized or programmed in TIPs to purchase PM_{10}-efficient street-sweepers, $7.4 million above previous commitment.
MARICOPA COUNTY: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. #71 – No enhanced commitments		
MCDOT owns five mobile street sweepers including three interim-technology PM_{10}-efficient units; MCDOT will purchase, lease, or contract additional, as necessary	No status	MCDOT currently owns six street sweepers, four PM_{10}-efficient street sweepers, and two conventional sweepers. MCDOT also contracts services for two additional PM_{10} street sweepers.

APPENDIX E – TABLE 1
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR PRIMARY AND SECONDARY PAVED ROADS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
ARIZONA DEPARTMENT OF TRANSPORTATION: 1997/1998 COMMITMENTS - #50 - Committed to review MAG PM_{10}-efficient street sweeping test results, evaluate technological/economic feasibility by December 2002, and purchase, lease, or contract PM_{10}-efficient street sweepers, as older equipment retired. Committed to participating in MAG Street Sweeper Stakeholder Committee, and with the MAG street sweeper test. #71 - Committed to increasing contracted curb miles swept and an increased commitment to litter removal.		
ADOT owns three sweepers, and has three other sweepers on contract. Currently, ADOT contracts for metro-Phoenix area an annual 30,000 curb miles to be swept in various frequencies. ADOT District Maintenance supplements sweeping, as necessary. ADOT has responsibility for maintaining facilities in the state highway system, in accordance with A.R.S. § 28-104. Three current mechanisms: (1) municipal intergovernmental agreements with ADOT; (2) ADOT contracts with private sector for maintenance; and (3) ADOT ad hoc sweeping by ADOT personnel using state-owned equipment.		ADOT owns 2 PM_{10} certified sweepers and is adding 2 more. ADOT sweeps all freeways in the Maricopa Association of Governments system weekly and all off ramps bi-weekly—a total of roughly 55,000 curb miles per year. ADOT is increasing its sweeping of State Route 87 (12 miles) and U.S. Highway 60 from the eastern border of the City of Phoenix to the eastern edge of the PM_{10} planning area boundary (30 miles) to monthly.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES Applicable to Unpaved Roads and/or Shoulders	
NEW MEASURES	**MEASURE DESCRIPTION**
#40	**Reduce Particulate Emissions from Unpaved Roads and Alleys** (1998): The Arizona Legislature passed SB 1427, which requires cities, towns, and counties in Area A to develop and implement plans to stabilize targeted unpaved roads, alleys and **stabilize unpaved shoulders** on targeted arterials beginning January 1, 2000. The plans are required to address performance goals, a schedule for implementation, funding options, and reporting requirements (A.R.S. § 9-500.04, and 49-474.01).
#41	**Reduce Particulate Emissions from Unpaved Shoulders on Targeted Arterials** (1998): Senate Bill 1427 requires cities, towns, and counties in Area A to develop and implement plans to stabilize targeted unpaved roads, alleys, and **stabilize unpaved shoulders** on targeted arterials beginning January 1, 2000. Plans are required to address performance goals, criteria for targeting the roads, alleys, and shoulders, a schedule for implementation, funding options, and reporting requirements (A.R.S. § 9-500.04, and 49-474.01). The February 2000 MAG SIP assumed a reduction of approximately 240 miles of unpaved roads by 2006, and assumed about 74 percent completion in 2001 (184 miles). MAG's 2001 milestone report asserts that approximately 787 miles of unpaved roads and alleys were paved or stabilized by reporting jurisdictions by 2001, which surpassed the MAG SIP milestone requirements.
#42 – NO CREDIT TAKEN	**Low Speed Limit for Unpaved Roads** (1998): The Arizona Legislature passed Senate Bill 1427 passed allowing local authorities to decrease the speed limit to not less than 15 miles per hour on an unpaved street or road within any district in its jurisdiction if the local authority determines that the limit is necessary to achieve or maintain the NAAQS, pursuant to A.R.S. § 28-703. No commitments to this measure in 1999 MAG SIP.
#43 – NO CREDIT TAKEN	**Use of Petroleum Products for Public Road and Street Maintenance** (1998): The Arizona Legislature passed SB 1427 passed, which allows use of petroleum-based or non-petroleum-based products in the maintenance/repair of unpaved roads, alleys and **shoulders** identified pursuant to A.R.S. § 9-500.04 or 49-474.01. No commitments to this measure in 1999 MAG SIP.
EXISTING MEASURES	MEASURE DESCRIPTION
#70	**Curbing, Paving, or Stabilizing Shoulders on Paved Roads (Includes Painting Stripe on Outside of Travel Lane)**

1999 MAG SIP COMMITTED MEASURES COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
APACHE JUNCTION: 1997/1998 COMMITMENTS – No enhanced commitments.		
		Five miles of curbing added since 1997; one mile of shoulders stabilized. No alleys or access points were paved or stabilized.
AVONDALE: 1997/1998 COMMITMENTS – #40 - City will participate in a regional program to assist in the reduction of particulate pollution, providing dust-proof treatments to any public street within a nonattainment area which is unpaved or for which alternate dust control or graveling measures have not been approved. #41 – Committed to September 30, 1999 implementation of provisions of SB 1427. #70 – Continuing to paint edgelines along roadways with unpaved shoulders on arterials and other streets where appropriate.		
City ordinance requires this measure. City zoning ordinances currently require paving for all off-road parking; all single-family residential and duplex parking areas; require all residential, commercial, and industrial developments have paved roads, curbs, and driveways.	City applied 29 miles of curbing; two miles of road millings; and stabilized seven miles of alleys.	Roads in Las Ligas paved, curbed and guttered. All dirt roads and alleys required to be treated with milling. All new road and development construction requires medians and right-of-way to have approved desert plants and rock landscaping to minimize dust. City to apply dust abatement milling on 28 miles of unpaved shoulders by 2/2/05 and maintain every 6 months.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
BUCKEYE: 1997/1998 COMMITMENTS - #40, #41, #70 - Town in process of five-year street-paving program, which includes curbs, gutters, and driveway entrances for all existing uses.		
Town Development Code currently requires paving for all areas traveled by vehicles. All roads, driveways, and parking areas must include paving and curbs.	Town constructed 3.25 Miles of curbing and gutters on new and existing roads.	Status not reported
CAREFREE: 1997/1998 COMMITMENTS - #40, #41, #70 - Commits to enforcing current ordinances; Town Subdivision Ordinance requires new roads and shoulders within the Town to be paved with asphalt, concrete, or the equivalent including gravel.		
Town has three miles of unpaved (graveled) roads (< 150 ADT). All road shoulders within jurisdiction are paved or graveled.	City added 1 mile of cubing.	City stabilizes 11 miles of shoulders as needed.
CAVE CREEK: 1997/1998 COMMITMENTS - #40, #41, #70 - Town indicates that remaining 25 percent of roads to be striped in FY 1998. Also, a new program for stabilizing paved road shoulders with lignin was implemented in 1998: All dirt roads after 1998 receive application of recycled asphalt or gravel, mixed and bound with lignosulfonate during regularly-scheduled grading cycles.		
Town indicates that 75 percent of all paved roads were restriped in 1996, by the end of 1998, over ten miles of unimproved dirt roads had been improved to include application of recycled asphalt or gravel, mixed and bound with lignosulfonate.		Town stabilizes unimproved roads with Dustac solution every 2 months.
CHANDLER: 1997/1998 COMMITMENTS - #40 - Committed to continuing program of dust-proofing city-owned alleys, applying millings to another five to seven miles in the next 12 months, based on availability of asphalt milling material. #41 - City committed to allowing natural vegetation to grow on all unpaved shoulders, conducting routine shoulder maintenance by mowing, rather than discing and blading. City also commits to implementing the provisions of SB 1427. #70 - City will evaluate any newly-annexed county roads to determine the appropriateness of striping outside the travel lane. Committed to paving all city-owned, public roads identified by June 10, 2000. SB 1427 commitments do not apply to unpaved roads and alleys located on an industrial facility, or construction or earth-moving activity on sites that have an approved permit issued by Maricopa County.		
City requires any newly-constructed street to include curbing and shoulder paving. City has: reconstructed 7.5 miles of alleys over the past four years, using six inches of ABC gravel for base and surface; applied asphalt milling to 31 miles of city-owned alleys.	City improved 4.3 miles of shoulder; developed standards requiring all roads to have full curb and gutters; 0.85 Miles of roads paved; 37 miles of alleys stabilized with millings; identified four sections of city-owned unpaved public roadway (1.25 miles, < 250 ADT), which were paved by 2001.	City has only one unpaved, city-owned, street; street is 0.75 mile long. All new development is required to have paved streets, curbs, and gutters. Existing unpaved shoulders are mowed rather than graded. All annexed areas are required to have plans in place to assure future pavement with curbs, and gutters.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
EL MIRAGE: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to allowing natural vegetation to grow on unpaved shoulders, will require developers to install pavement, curb, gutter, sidewalks, and landscaping as development occurs. By June 1998, City will identify all shoulder areas requiring curbing, paving, stabilization, or striping, allow vegetation to grow, and stabilize where necessary. City committed to paving: one-half mile of currently unpaved roadways; and the one-quarter mile long roadway to the City's Wastewater Treatment Plant in 1999. El Mirage will require all developers to commit to stop track-out.		
1999 MAG SIP assumed that City would allow natural vegetation to grow on shoulders. City currently responsible for maintaining six miles of unpaved roadways within a large lot rural subdivision. City's current plans address 95 percent of all unpaved City roadways.		Contractor/Developer must agree to provide dust control or dust palliative surface for traffic entering unpaved undeveloped surfaces in Line 3 of Traffic Control Plan Submittal Form. City applies asphalt millings (GSA) to residential dirt road surfaces and to unimproved shoulders of high-profile high-volume truck traffic locations including El Mirage and Dysart Roads, 8 to 10 feet width from edge of asphalt.
FOUNTAIN HILLS: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to developing and implementing a plan requiring stabilization of unpaved shoulders of paved roads. Owners/operators of existing public unpaved roads with ADT ≥ 250 are required to pave, stabilize, or apply gravel to the unpaved shoulder part of the road. Committed to implementing the provisions of SB 1427: developing and implementing a plan requiring unpaved roads and shoulder stabilization (pave, chemically stabilize, or apply gravel) to unpaved roads with an ADT of 250 or greater. Approximately 2.4 miles-alleys will be evaluated and treatment will begin by January 1, 2000, continuing, as needed.		
Owners/operators of existing public unpaved roads with ADT ≥ 250 are required to pave, stabilize, or apply gravel to the unpaved shoulder part of the road.	Town stabilized 8.9 miles of shoulders using millings or gravel. (Out of 2.4 miles of alleys (0.15 is road that will remain untreated, since they lead to the Indian Reservation and will remain unused), 0.75 have been treated with millings, and is estimated that 0.25 to 0.50 miles will be treated in 2002.)	187 miles of paved roads in Fountain Hills. Town has curbed 374 miles of paved roads. Town has stabilized, using millings or gravel, 8.9 linear miles of road shoulders (both sides of road). Town has approximately 0.25 miles of public unpaved alleys; these are inaccessible, due to lot configuration. Town verifies that all unpaved access points onto paved roads comply with Maricopa County dust control regulations.
GILBERT: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to stabilizing unpaved shoulders with milled asphalt. Town commits to implementing the provisions of SB 1427. Continuing to evaluate methods and products available for dust control at unpaved access points, on unpaved shoulders, and on unpaved roads and alleys. Town to require paving of all unpaved access points with reclaimed asphalt, and will require paving during land development process. Town continuing to identify shoulders requiring treatment for dust control.		
Town currently requires, and will continue to require, developers to install pavement, curb, gutter, sidewalks, and landscaping. Town stated its commitment to reduce particulate emissions from unpaved shoulders in Resolution No. 1864 (November 1997). Committed to allowing natural vegetation to grow on unpaved shoulders. All Town and arterial collector streets in the public street system are paved. About 1.25 miles of local, single-lane streets are unpaved, but stabilized with milled asphalt and regarded and watered, monthly (ADT less than 120). Town commits $500 per mile in maintenance costs, monthly.	Town maintains 44.7 miles of unimproved shoulders using stabilization.	38 miles of new paved roads, curbs and driveway access points were added in 2002 and 8.9 miles in 2003 at new developments, which are required to pave and curb. Town maintains 75 miles of unpaved, stabilized shoulders. All arterials and collectors are paved.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
GLENDALE: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to implementing the provisions of SB 1427. City commits to paving existing unpaved arterial streets, should the City gain possession of them.		
City uses Scallop Street Improvement and Street Capital Improvement programs to fund installation of pavement, curbs, gutters, sidewalks, and landscaping improvements to existing streets; allows natural vegetation to grow to stabilize unpaved shoulders, where appropriate; and paints a roadway edgeline on existing arterial streets that do not have curb and gutter. City does not keep records on number of miles of curbing installed; Once a month, water applied to shoulders. City sprays to prevent weeds.	45 Curb miles are stabilized once a year; 100 percent of unpaved curb miles along arterial streets are stabilized. No information on installing curbs; 1.5 miles of roads paved (less than 150 ADT); unpaved segments of 23 miles of alleys paved.	All city-owned streets are currently paved. New City streets are paved during construction. Curbs, gutters, and sidewalks are installed on all public roads and streets when new streets are constructed. In addition, City installs curbs, gutter, and sidewalks on certain segments of existing arterial streets that previously lacked such features. City does not keep records on total amount of curbing installed. City uses asphalt millings on select unpaved shoulders and is evaluating new soil stabilizing products for impacts on stormwater quality. City reduced unpaved shoulders from 44 linear miles to 29.3 linear miles.
GOODYEAR: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to implementing the provisions of SB 1427, developing a plan by April 30, 1999. All new roads will be required to provide paving with curb and gutter or to provide suitable dust suppressant. Committed to providing dust-proofing for any unpaved public street and for which current dust-proofing measures have not previously been approved. City will be required to post 15 mph speed limit signs on all private access ways as determined by Public Works Director. Speed limit on all unpaved roadways, private or public, will be posted at 15 mph.		
City currently requires installation of curbs, gutters, sidewalks and landscaping when arterial streets are improved; currently requires a painted edgeline on outside travel lanes of appropriate arterial streets with unpaved shoulders; shoulders are repaired as necessary with appropriate materials.	Once a month, water applied to shoulders; City sprays to prevent weeds. Those roads with shoulders owned by the County are not stabilized; 7.1 Miles of unpaved roads paved; 5.3 miles of city alleys paved	City has 260.7 center lane miles of paved roads. City installed 345,000 linear feet of curb and gutters. Unpaved shoulders are graded and watered quarterly.
MESA: 1997/1998 COMMITMENTS - #40, #41, #70 - Committed to implementing the provisions of SB 1427. Committed to including $120,000 for an estimated ten miles of shoulder/access stabilization in the annual proposed budget for Council consideration, until all high priority unpaved shoulders are stabilized. Committed to continue to develop improvement districts to pave unpaved traffic surfaces; will work with other entities to prioritize air quality measures and eliminate particulate pollution at the sources. City will evaluate the legality and feasibility of installing 15 mph traffic signs on unpaved roads.		
City practice is to pave shoulders as arterial streets are repaved; an estimated 55 miles of unpaved shoulders remain in jurisdiction. City code currently requires paving and curbing for residential, commercial, or industrial areas under development, under City Code 9-6-4, and 9-8-3.	City stabilized 20 miles of shoulders and paved 19 miles of curbs; six miles of road; stabilized 12 miles of road; paved one mile of alleys; stabilized six miles of alleys,	In 2002, City stabilized 3.5 miles of shoulders, 15 miles of roads, and 38 miles of alleys. In 2003, City stabilized 1.25 miles of shoulders, 14 miles of roads, and 46 miles of alleys.
PARADISE VALLEY: 1997/1998 COMMITMENTS - #40, #41, #70 - Continuing to implement current ordinance requiring paving of all public streets.		
Town indicates that it has no arterial streets with unpaved shoulders, and no streets that are expected to become arterial streets have unpaved shoulders. Currently no unpaved public streets/alleys with ADT > 150.	Town paved 1.1 miles of roads.	Town has 140 miles of paved streets. Three linear miles (six lane miles) of unpaved private streets have been paved since the 2001 milestone report. Town has added four miles of curbing (two linear miles) on both sides of the street. Town has stabilized 0.5 mile of street shoulders.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
PEORIA: 1997/1998 COMMITMENTS - #40 – Committed to identifying all unpaved public roads for stabilizing or paving by January 1, 1999 (SB 1427). #41 Committed to implementing the provisions of SB 1427, developing a plan by January 1, 1999. City will stabilize shoulders using existing maintenance staff at $12,200 per acre for gravel, and $40 per regulatory sign. #70 - Committed to identifying all shoulders or paved roads requiring curbing, paving, stabilization, or striping, and allows natural vegetation to grow on shoulder, as applicable.		
In 1998, City had 34.8 edge miles of arterials with unpaved shoulders (140 acres); 8.4 centerline miles of unpaved public roads; 3.3 miles of quasi-public unpaved roads City Code Section 23-81 specifies that on or after March 31, 2000, any unpaved public street for which the Public Works Director has not approved alternative dust-proofing measures, must be paved or stabilized City Ordinance 98-20, after March 31, 2000, requires the posting of 15 mph speed limit signs on all private access ways as determined by Public Works Director	City installed curbs or gutters along 25.5 miles of unconfined shoulders.	Paved 7.4 miles and adopted Capital Improvement Plan in June 2004 to pave or chip seal all remaining unpaved roads. Carefree Road to be paved in FY2005. 9.64 miles of new curbing added since 2001. Paved 9.4 miles of unpaved shoulders; 25.4 miles remain and City applies ABC and installed NO PARKING signs.
PHOENIX: 1997/1998 COMMITMENTS - #41, #70 – No enhanced commitments. City Council Resolution #18949, approved by Council July 2, 1997, committed to MAG SIP measures 97-DC-4 and 97-DC-99. [1998] – City funded a project to pave all public unpaved roads by June 10, 2000 (@ 80 miles), not including curb and gutter. City will pave @ 3.2 miles of unpaved streets, including curb and gutter, through Improvement District Program in FY 1998-1999. City committed to construction of 8.95 miles of curb and gutter on arterial streets with unpaved shoulders, through the 5-Year Arterial Street and Storm Drain.		
Pavement and curbs for existing unpaved roads continues through improvement districts. City installs curb and gutter on existing, major arterial streets without curb and gutter, through the five-year Arterial Street and Storm Drain Program; six miles of curb and gutter budgeted for FY 1997-1998. City Resolution No. 18949 (City zoning ordinance) requires that new roads serving multi-family, commercial, and industrial development include paving, curbs, and driveways consistent with municipal standards. City ordinance No. S-25438 requires paving of all unpaved roads.	City: curbed 805.2 lane miles of road; 107 lane miles of shoulders; stabilized 484 lane miles of shoulders; and paved 0.44 miles of alleys In 2002, Phoenix to begin a 10-year program to treat all 600 miles of alleys using a budget appropriation of $2 million per year.	In 2002, City curbed 201.6 lane miles of shoulders (152 lane miles of new roads, and 49.6 lane miles of existing, unpaved shoulders). City stabilized 72 lane miles of shoulders and stabilized 40 miles of alley. City has paved all dedicated, unpaved roads within its boundaries. In 2003, City curbed 96.7 lane miles of shoulders (72 lane miles of new roads, and 18.7 lane miles of existing, unpaved shoulders). Stabilized 78.4 lane miles of shoulders, and stabilized 146.9 alley miles. In 2003, City paved 1,137 unpaved access points.
QUEEN CREEK: 1997/1998 COMMITMENTS - #41, #70 - Committed to implementing the provisions of SB 1427, expanding the Town's Wildflower program to vegetate the targeted unpaved shoulders, or agreeing with Maricopa County to apply dust stabilizers. #40 - Committed to identifying all public unpaved roads and alleys, paving one of its unpaved roads, and chip sealing the other by July 1, 1998.		
In 1997, Town had two unpaved roads. SIP assumed that Town would pave 0.5 miles and chip seal 0.25 miles of unpaved road.	Town paved 0.75 mile of unpaved, residential streets (equal to two lanes), and widened and paved an additional 900 feet of right-of-way (equal to one lane). Town paved 0.25 miles of road; added 2 miles of curbing (one side of road), since 1997. Town stabilized 2 miles of shoulders (one side of road), since 1997.	Town paved 3.2 miles of roads related to subdivision development. Town paved three miles of unpaved residential streets within Town's incorporated limits, but outside the Maricopa County PM_{10} Nonattainment Area. Town added 3.25 miles of curbing (one side of road), and 0.75 miles of curbing (both sides of road), since 2002. Town stabilized 3.25 miles of shoulders (one side of road), and 0.75 miles of shoulders (both sides of road), since 2002.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
SCOTTSDALE: 1997/1998 COMMITMENTS - #41, #70 - Committed to implementing the provisions of SB 1427; additional miles of bike lanes (pavement of shoulders) are budgeted through 1999. #40 – No enhanced commitments.		
City indicates that since 1972, Scottsdale City Code, Section 47-24 has required that all streets and alleys be constructed to meet public improvements standards for subdivision streets (Section 47-36; Section 48-137). Street improvement standards typically require asphaltic concrete surfacing, aggregate base, Portland cement concrete, and curb and gutter. City uses painted edgelines along roadways with unpaved shoulders on arterials Access roads must be paved with asphalt for a certain distance on unpaved roads. City zoning ordinance requires that new roads serving multi-family, commercial, and industrial development including paving, curbs, and driveways City ordinance authorizes the General Manager of the Transportation Department to alter speed limits established by state law on city streets. Speed limit on all city alleys has been set at 15 mph.	City paved 4.0 miles of road and shoulders; stabilized 10.6 miles of road and shoulders; applied 3.3 miles of road millings; paved/stabilized 87 miles of alleys	City paved 13.8 miles of road (27.6 lane miles), and added 8.8 centerline miles with curbing on both sides. City removed a total of 46.5 miles of shoulders (23.25 centerline miles) from untreated inventory through the following measures: City paved 33.5 miles of shoulders, stabilized six miles of shoulders, provided curb and gutter for 7 miles of shoulders, and treated 37.1 miles of shoulders with native decomposed granite.
SURPRISE: 1997/1998 COMMITMENTS - #41, #70 - Developers will pave and curb approximately five miles of unimproved streets per year. In addition, five miles of unpaved shoulders will be stabilized by beginning of FY 1998. #40 – No enhanced commitments.		
City Resolution No. 97-29 (Paving, Vegetating and Chemically Stabilizing Unpaved Access Points, June 1997) covers City's commitment to paving shoulders.	City paved 3.25 miles of road; no shoulders dust-proofed or stabilized.	City applies Water Truck services to unpaved rural roads at least every 4 weeks. City bought one new 1,000 gallon water truck in FY04 and rented a 2,500 gallon water truck for 6 months in FY04. City funded one new 5,000 gallon water truck for FY05. City purchased one roller for compaction in FY04 for same roads. City chip sealed 170,400 sq. yards of previously unpaved rural roads and paved 10,763 sq. yards of previously unpaved city-owned parking lots. City applied A/B and millings to 7,500 sq. yards of unpaved overflow parking. City paved 11,500 sq. yards of unpaved connector. City began negotiations for cooperative agreements with landowners in undeveloped areas to pave dirt roads. City requires all new development to pave streets and include curb, gutter and sidewalk.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
TEMPE: 1997/1998 COMMITMENTS - #41, #70 – Committed to implementing the provisions of SB 1427. #40 - Committed to working with ADEQ to consider the impact of 15-mph speed limit on unpaved roads.		
City of Tempe Code requires paved roads and parking areas for any new construction; City of Tempe roads nearly 100 percent paved and curbed, with one mile of streets left to pave Chapter 30 of the Tempe City code requires all new roads serving residential, multi-family, commercial, and industrial development include paving, curb and gutter, and driveways consistent with City standards.	City added 5.6 miles of curbing; 0.94 miles of road paved; 128 miles of alley stabilized (each mile stabilized 2.5 times since 1997).	1,241 paved lane miles. City paved 70,623 sq. feet of unpaved parking lots and paved 1730 access points onto paved roads.
TOLLESON: 1997/1998 COMMITMENTS - #41 - Committed to stabilize approximately four miles of unpaved shoulders on 91st and 99th Avenues from I-10 to Buckeye Road, using Soil Sement, and to implement the provisions of SB 1427. #70 - Committed to strengthen the enforcement of an existing city ordinance requiring curbing, gutter, and sidewalks on all city rights-of-way within residential, commercial, and industrial developments. #40 - City Resolution No. 794 committed City to a good faith effort to implement measures to reduce particulate matter from unpaved roads; committed to paving all unpaved City roads (0.5 miles) no later than June 10, 2000		
City Resolution No. 794 indicates that City will put forth a good faith effort to implement measures to reduce particulate emissions from unpaved shoulders and unpaved access points on paved roads.	City paved 3.9 miles, and paved or stabilized 100 blocks of alleys. City indicated that there were no unpaved access points onto paved or stabilized roads in its jurisdiction.	City added 1.69 miles of paved road, 1.95 miles of curbing, and 7.5 miles of shoulder stabilization. City paved or stabilized 100 blocks of unpaved alleys 3 times since 2001.
YOUNGTOWN: 1997/1998 COMMITMENTS - #41, #70, #40 - Committed to developing and implementing a plan requiring stabilization of unpaved shoulders of paved roads, and to implement the provisions of SB 1427. Owners/operators must have existing, unpaved roads and alleys (ADT > 250) stabilized, paved, or graveled by June 10, 2000 (@ seven miles).		
Town committed to continue to reconstruct roadways in accordance with its annual, and five-year plan, including the addition of curbs and gutters to existing streets. Project completion scheduled for May 1998.	Town stabilized eight miles of alleys.	26 miles of curbing; 12.75 miles of stabilized shoulders; and 1.7 miles of paved alleys. Town stabilizes 6.8 miles of unpaved alleys annually with dust retardant.
ADOT: 1997/1998 COMMITMENTS - #41, #70 - Curb and gutter projects are included in new Five-Year Highway Construction Program as part of new construction or reconstruction.		
A.R.S. § 28-104 and ADOT standard specifications require the rehabilitation and protection against erosion of all areas disturbed by construction, through seeding, sodding, mulching, and placement of other ground covers.	Same requirements continued.	Same requirements continued.

APPENDIX E – TABLE 2
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR UNPAVED ROADS AND/OR SHOULDERS		
1999 CONTROL STATUS	**2001 MILESTONE**	**2004 MILESTONE**
MARICOPA COUNTY: 1997/1998 COMMITMENTS - #41 - MCDOT has two projects to pave a total of 12 miles of unpaved shoulders to create new bicycle lanes in the next year, and will treat an additional 100 miles of shoulders on existing arterial and collector roadways with high volume truck traffic by 2003. #70 - No enhanced commitments. #40 - County committed to stabilizing all County unpaved roads within the nonattainment area with ADT > 250 by June 10, 2000, and all County unpaved roads within the nonattainment area with ADT > 150 by June 2004 (20 percent per year). County committed to continuing the current roadway design standard requiring that all new subdivision roads and County constructed roads be paved. County commits to paving 60 miles of existing "courtesy grade" roads (ADT > 150) that meet criteria to become public highways, by September 2003.		
MCDOT currently requires pavement of all new access points to County paved roads to edge of right-of-way; MCDOT will pave existing access points when roadway is reconstructed or widened, and install curb and gutter designed as urban roadways. In 1999, MCDOT treated 10 miles of shoulders, testing dust suppressant	Maricopa County paved or stabilized over 390 miles of unpaved roads – 190 miles over and above the existing commitment. County roadway design standard requires that all new subdivision roads and County-built roads be paved. County stabilized 39 percent of 326 miles of arterial shoulders in County jurisdiction, to control dust. In 2001, Maricopa County paved 9.63 miles of unpaved roads, and paved 15.37 miles (of a total of 199.6 miles) of unpaved roads in the PM_{10} nonattainment area.	County stabilized approximately 127 miles (41 percent of 309 miles) of arterial shoulders under County jurisdiction in 2002, and approximately 185 miles (62 percent of 299 miles) of arterial shoulders in County jurisdiction and in the PM_{10} nonattainment area in 2003. Of the 185 miles, 105 were paved, curbed, and guttered, while approximately 80 miles of shoulders were stabilized. In 2002, County paved 12.89 miles (of a total of 184.1 miles) of unpaved roads in PM_{10} nonattainment area. In 2003, County applied first layer of pavement to 36.9 miles of unpaved roads in PM_{10} nonattainment area.
MARICOPA ASSOCIATION OF GOVERNMENTS: 1997/1998 COMMITMENTS - #40 - On December 8, 1999, MAG Regional Council approved $7.85 million for paving projects to reduce fugitive dust from unpaved roads, including private unpaved roads that are publicly maintained within the jurisdiction of Maricopa County.		
On December 8, 1999 the MAG Regional Council approved an amendment to the FY2000-2004 Transportation Improvement Program (TIP) to add three Maricopa County paving projects for dirt roads in FY 2001, 2002 and 2003 totaling $7.85 million.	In FY 2001, $1.7 million in CMAQ funds was allocated for Maricopa County paving projects for unpaved roads.	Maricopa County FY 2001, 2002 and 2003 paving projects have been completed. FY 2002-2006 TIP includes $3.0 million new CMAQ funds for Maricopa County paving dirt road projects, which surpasses the original commitment.

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES **Applicable to (Windblown) Alluvial, Agricultural, Disturbed Land, and Vacant Lots**	
NEW MEASURES	**MEASURE DESCRIPTION**
#45	**Reduce Particulate Emissions from Unpaved Parking Lots**
#46	**Reduce Particulate Emissions from Vacant, Disturbed Lots**
#48 – NO CREDIT TAKEN	**Dust Abatement and Management for State Lands**: In 1998, the Arizona Legislature passed Senate Bill 1427. The bill appropriated $200,000 from the Arizona General Fund to the Arizona Land Department for implementing a Dust Abatement and Management Plan to include measures to control particulate pollution on Arizona trust lands in Area A. The plan may include measures to close areas to illegal use by off-highway vehicles, closing roads that are used or illegal, and increasing the enforcement of no trespassing areas (§ 36 of SB 1427).
#49 – NO CREDIT TAKEN	**Agricultural Best Management Practices**: Senate Bill 1427, passed by the Arizona Legislature in 1998, includes Best Management Practices for Agriculture to reduce particulate emissions. The legislation established a Best Management Practices Committee for Regulated Agricultural Activities, appointed by the governor. By June 10, 2000, the Best Management Practices Committee will adopt by rule an agricultural general permit specifying best management practices for regulated agricultural activities to reduce PM_{10} particulate emissions.
EXISTING MEASURES	**MEASURE DESCRIPTION**
None	

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR (WINDBLOWN) ALLUVIAL, AGRICULTURAL, DISTURBED LAND, AND VACANT LOTS		
1999 CONTROL STATUS	2001 MILESTONE	2004 MILESTONE
APACHE JUNCTION – 1997/1998 COMMITMENTS – None		
Status unknown	Status unknown	No parking lots paved or stabilized
AVONDALE: 1997/1998 COMMITMENTS - #45, #46 – Committed to notification of all owners of unpaved parking lots that they must pave their lots by September 30, 1999, and will enforce Maricopa County Rule 310.		
City has estimated 500 acres of private, vacant lots – much in natural desert vegetation. Acreage that has been recorded consists of custom lots and undeveloped subdivisions in jurisdiction.	122,591 Square feet of parking lots paved; 203,360 square feet stabilized with millings	In 2005 City Code Enforcement personnel will revisit all commercial businesses to determine if all unpaved parking lots required to be paved have been paved or qualify for exceptions in Ordinance 98-DC-9 and issue citations for violations. City Ordinance 98-DC-10 addresses disturbed vacant lots larger than 5 acres. Code Enforcement refers violations to Maricopa County.
CAREFREE: 1997/1998 COMMITMENTS - #45, #46 – Town commits to support of its zoning ordinance, which requires all new parking lots to be paved with asphalt, concrete, or gravel; no grading allowed on vacant lots until a building permit is issued.		
Town has four unpaved parking lots; all are graveled, and only one exceeds 5,000 square feet. There are no disturbed vacant lots in jurisdiction. Town zoning ordinance requires all parking lots to be paved with asphalt, concrete, or equivalent, including gravel. No grading allowed until a building permit has been issued.	Two public parking lots were paved in 2001. Two privately owned parking lots are stabilized with gravel.	No changes in parking lots. February 2004 Zoning Ordinance prohibits grading without zoning clearance and a building permit; area to be disturbed cannot be larger than permitted improvements, and unpaved parking lots are prohibited. Carefree has no existing disturbed vacant lots.

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2004 PM10 MILESTONE REPORT CHART AND SUMMARY
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1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR (WINDBLOWN) ALLUVIAL, AGRICULTURAL, DISTURBED LAND, AND VACANT LOTS		
1999 CONTROL STATUS	2001 MILESTONE	2004 MILESTONE
CAVE CREEK		
Existing permanent parking lots are either paved or dust-proofed. City has a general nuisance ordinance that could be used to control activities on private property that causes dust problems, on a complaint basis. City requires new parking spaces be surfaced with concrete, asphalt, or paving blocks.	All city parking lots are paved or stabilized; dust emissions from vacant City lots that violate MCESD regulations will be resolved expeditiously	Town Hall Parking area and road crew yard are either paved or stabilized for dust control. The combined parking areas total about 39,000 sq. feet. Zoning Code requires County dust control permits for new buildings and roadways in Cave Creek. Road grades greater than 12% must be paved. Roads of lesser grades must add at least 4 inch thick, 3/8 minus decomposed granite or equivalent for dust control. All city-owned alleys are currently paved (a total of 23 miles).
CHANDLER: 1997/1998 COMMITMENTS - #45 - City has adopted an ordinance requiring all parking areas to have a dust-free surface, applying to all parking areas, regardless of size. Provision does not apply to residential parking areas accommodating 10 or fewer vehicles. City plans to add two inspectors for enforcement of City ordinances. Ordinance does not apply to lots located on an industrial facility, or to construction or earthmoving activities on sites that have a permit approved by Maricopa County. #46 - City commits to adopting, no later than May 1999: a. an ordinance requiring owners/operators of vacant lots of 5,000 square feet or greater, disturbed by motor vehicles, to erect signs, fencing, or other barriers to prevent trespass; or apply surface gravel or stabilizers. b. an ordinance requiring owners/operators of vacant lots that remain undeveloped for more than 15 calendar days and where more than 0.50 acres has been disturbed, to establish ground cover, apply dust suppressant, restore to natural state, or apply gravel. City commits to adding two dust inspectors.		
Ordinances adopted. City ordinance requiring dust-free surfaces for all parking lots adopted. All City-owned, unpaved parking lots are dust-proofed.	Four new parking lots developed with dust control applied (215,000 square feet); 5, 066 dust control calls logged since December 1997. Chandler City Code §§ 30-2.4B., C., D., providing more stringent controls for dust from vacant, disturbed lots, adopted.	All commercial and residential parking lots with over 10 vehicle spaces must be paved. Owners of lots greater than ½ acre must stabilize the surface and take actions to minimize dust during weed control, prevent trackout, and stabilize surface after weed control. Barriers or signs to prevent vehicle trespass are required on vacant lots 5,000 sq. feet or larger. Dust control and landscaping measures required on all portions of development projects. Stabilized 4 lots (360,000 sq. ft)
EL MIRAGE: 1997/1998 COMMITMENTS - #45, #46 – City commits to amendment, within eight months of the effective date of the FIP, or 60 days following lot disturbance, whichever is later, of Municipal Code, Chapter 13, Vehicles and Traffic to include language to manage dust control on vacant, disturbed lots, and of Municipal Code, Chapter 10, Health and Sanitation, Section 10-4-10, Weed Abatement; and of Municipal Code Section 10-1-1, Vegetation Maintenance.		
City previously paved all existing “high-use” City-owned parking lots. There are no other existing “high-use” unpaved commercial parking lots within the jurisdiction. City’s zoning ordinance requires that all new parking lots be paved with materials suitable to controlling dust.	Same measures continued	Same measures continued

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

1999 MAG SIP COMMITTED MEASURES		
COMMITTED CONTROL MEASURES FOR (WINDBLOWN) ALLUVIAL, AGRICULTURAL, DISTURBED LAND, AND VACANT LOTS		
1999 CONTROL STATUS	2001 MILESTONE	2004 MILESTONE
FOUNTAIN HILLS: 1997/1998 COMMITMENTS - #45 – Town will pave or stabilize all Town-owned parking lots, and all future Town-owned parking areas will be paved or surfaced with compliant material. Town uses a privately-owned lot as a special event parking area (@ 40 acres); this area is exempt from additional measures, due to infrequent use. #46 - Town indicates that it has adopted Town Code, Chapter 12-2, Traffic Control and Section 12-2-11, Operation of Vehicles on Vacant Lots, which prohibits vehicular use across any portion of a vacant lot. Town commits to approving ordinances restricting use of vacant areas and requiring dust suppression.		
Town enforces Town zoning ordinance § 7.03-A.2, which specifies that parking spaces must be surfaced with asphaltic concrete, pavement bricks or cement. Town of Fountain Hills currently has approximately more than 1,900 acres of underdeveloped, but developable, platted lots.	No authorized unpaved parking lots in town; 1900 acres of pristine desert exist at this time and ordinances and code prohibit disturbance without a development permit	No unpaved parking lots authorized for public use. All future public or private parking areas must be paved or surfaced with compliant material per Town ordinances and Code guidelines. Town has approximately 1,700 acres of currently undeveloped, but developable, lots with native vegetation. Town ordinances and Code prohibit any land disturbance without a development permit. Town adopted a wash resolution policy that prohibits any motorized vehicular access.
GILBERT: 1997/1998 COMMITMENTS - #45 – Town will consider adopting an ordinance requiring existing private unpaved parking lots to be paved or dust-proofed, and will commit to a schedule in accordance with the June 10, 2000 implementation date. #46 - On February 17, 1998, Town adopted ordinance No. 1090, which amends section 62.5 of Municipal Code to prohibit operation of motor vehicles on unpaved or non-dust-proofed property.		
Existing permanent parking lots are either paved or dust-proofed.	Status not reported	Town stabilizes 24 vacant lots totaling 5,638,841 sq. feet. All Town-owned parking lots are either paved or stabilized. Private commercial or industrial parking lots with 5 or more parking spaces or greater than 2,000 sq. feet must be paved or dust-proofed. 382 violations of Vehicles on Private Property ordinance issued in 2002; 244 violations in 2003.
GLENDALE: 1997/19998 COMMITMENTS - #45 – No enhanced commitments; #46 - City commits to enforcement of an existing provision prohibiting the operation of a motor vehicle on or across any portion of an existing vacant lot, unless lot is dust-free; and of an existing general nuisance ordinance, and will continue to support enforcement of Maricopa County Rule 310.		
Status not reported	Status not reported	All City-owned lots are paved.
GOODYEAR: 1997/19998 COMMITMENTS - #45, #46 – Committed to notification of all owners of unpaved parking lots that they must pave their lots by April 1999, and will enforce Maricopa County Rule 310. City adopted Resolution No. 97-594, supporting MCESD Rule 310.		
City does not have an ordinance in place to reduce particulate pollution; City has estimated that jurisdiction has approximately 320 acres of private, vacant lots.	City has no dirt parking lots – millings have been applied to all	All City-owned parking lots are paved. Zoning Ordinances 6-1-2 and 6-2-2 contain requirements for improvements and use of privately owned unpaved parking lots and vacant lots. City of Goodyear Code 13-2-12 regulates operation of vehicles on vacant lots, and 103 violations were cited in FY04. All alleys have been paved.

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

MESA: 1997/19998 COMMITMENTS - #45, #46 – City budgeted $1 million to pave 21,500 square yards of Falcon Field, in FY 1997-1998. In 1999, Mesa submitted BACM commitments to reduce particulates from unpaved parking lots (97-DC-9). Also, Mesa adopted ordinance 3465, which requires that effective fugitive dust control measures be implemented on any unpaved parking lot greater than 5,000 square feet.		
All existing City of Mesa parking lots were paved in last three years, except for Falcon Field. City ordinance 3388 (1997) makes it unlawful to park or store vehicles in residence yards. City code § 11-16-2(E) requires pavement of parking and loading spaces, maneuvering areas, and driveways.	City's only unpaved parking lot at Falcon Field was paved; 10 acres of vacant lot (436,500 square feet) stabilized; City responded to 20 private vacant lot complaints and arranged with owners to reduce dust; all City-owned lots inspected for stabilization, monthly; two fulltime inspectors	All City-owned lots are inspected monthly for stabilization and treated, as necessary.
PARADISE VALLEY: 1997/19998 COMMITMENTS - #45 – City commits to adopting, no later than June 10, 2000, an ordinance requiring that unpaved parking lots must be improved and maintained to MAG standards. #46 - Town commits to enforcement of existing regulations prohibiting grading and disturbance of a vacant lot.		
Existing ordinance requires that all parking lots, except for single family residences, be paved.	City paved two parking lots (88,000 square feet); City stabilized 14,549,040 square feet of vacant lots; 334 vacant lots were developed between 1997 and 2001, all a minimum of one acre	Town stabilized the parking lot of the Goldwater Memorial (5,700 square feet). The Town ordinance in place for control of PM10 emissions from unpaved parking lots and vacant, disturbed lots/land, is Article 5-13, Sections 5-13-2, 5-13-3, and 5-13-4. Dust control plans must meet the requirements of Maricopa County Rule 310, regulating fugitive dust. Violators of Town ordinance 5-13 are referred to Maricopa County for prosecution. Town has referred three violations since 2001. Town has stabilized one vacant lot by constructing a memorial on the site (43,560 square feet). Town does not have any alleys to be paved or stabilized. Town has not paved or stabilized any unpaved access points onto paved roads or streets.
PEORIA: 1997/1998 COMMITMENTS - #45 – City commits to a good faith effort to implement measures to reduce particulates from unpaved parking lots, and will notify all owners of such lots that they must pave by April 1999. Also, City will require that all driveways including the dirt parking lot be paved.		
City has identified 62 lots which will require pavement or dust palliative.	23 commercial unpaved parking lots identified.	5 of the 23 commercial unpaved parking lots have been paved. City notified all private property owners of requirements for unpaved open areas in Sections 23-75 through 23-78 of Municipal Code. Vacant lots stabilized total 996.19 acres (of 1,194.8 identified in 1999. Chip seal has been applied to all 2.77 miles of downtown alleys.

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

PHOENIX: 1997/1998 COMMITMENTS - #45 – City commits to paving all unpaved or gravel parking lots, approximately five acres, at City-owned facilities. Paving is scheduled for FY 1998-1999. City of Phoenix ordinance S-25438 approved $5.8 million for stabilization of both City-owned vacant and parking lots. #46 - City commits to working with ADOT to help identify excess properties along freeways and expedite their sale. (City Council Resolution No. 19006) City recently amended: Phoenix City Code, Chapter 39, Article II, Section 39-7, prohibiting property owners from allowing vehicular traffic on unpaved lots or other disturbed surface; Phoenix City Code, Chapter 36, Article XI, Section 36-145, to prohibit vehicle owners from parking on disturbed surfaces. City funded a program to identify and stabilize City-owned vacant lots, including a lot inventory, computerized tracking and mapping system, site inspections, EPLA-approved testing of disturbed soils, stabilization products review, and stabilization services.		
Defined as Resolution 19006 (measure 97-DC-9b), city zoning ordinance requires paved parking for commercial parking lots with three or more spaces and dust-proofing for residential parking areas.	City paved 57 unpaved parking lots; 118 vacant lots stabilized (120.7 acres); City-owned lots are inspected and treated, as necessary	In 2002 and 2003 combined, City inspected 468 vacant lots, and treated 50. City's Neighborhood Services Department conducted 16,564 enforcement actions against vehicles on vacant lots, and police conducted 161 enforcement actions on vehicle owners. There are currently 159 developments in Phoenix with required paved parking. All City-owned parking lots are paved. Alluvial channel concentrated enforcement July through November 2004 resulted in 55 citations and 220 warnings. Vehicle trespass dropped to zero to two vehicles in December; pedestrian trespassers dropped from 45 to 8 per weekend. 30 No Trespass signs installed and maintained. 330 Tons of trash and over 2,000 tires were removed by contractors from upper riverbank and a thick layer of mulch applied to 12 acres through 1/05. Contractors have secured 1800 feet of fences and berms to prevent trespass along Broadway Road since 7/04. City treated entire length of berm on its property with polymer stabilizer. 1100 feet of guardrail on West side of 35th Avenue, North and South of bridge, has been installed. Installation of concrete barriers at all 4 corners of 51st Avenue bridge began 1/05. Rains in January 2005 formed crust in alluvial channel.
QUEEN CREEK: 1997/1998 COMMITMENTS - #45 – No enhanced commitments; #46 - Town commits to adopting an ordinance to reduce particulate emissions from vacant disturbed lots by requiring several dust control measures.		
Town of Queen Creek has identified all unpaved parking areas in jurisdiction and has determined that all existing parking areas in the jurisdiction were either paved, had gravel, or were approved for use with a dust palliative. Current zoning ordinance requires that all off-street parking areas be surfaced with permanent pavement.	Town has paved 12 parking lots since 1997. Town adopted a revised zoning ordinance in 1999. Town determined that all existing parking lots in the incorporated limits were either paved, had gravel applied to the lot, or an approved use permit with the stipulation that a use of a dust stabilizer was necessary.	Town paved two new Town-owned parking lots (totaling 35,725 square feet). Town has approved 12 new, paved, commercial parking lots constructed since 2001 Milestone Report. All new off-street parking areas required to be paved.

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

SCOTTSDALE: 1997/1998 COMMITMENTS - #45 – City committed to evaluating two possible options for private unpaved parking lot owners who must meet FIP unpaved parking lot requirements, which affect lots greater than 5,000 square feet, exempting lots used fewer than 35 days per year. City committed to requesting @ $200,000 over two years to provide for paving public unpaved parking lots, assisting private lot owners, educating inspection staff, etc. #46 - City commits to continue to enforce current regulations prohibiting use of motor vehicles on disturbed surfaces, to continued enforcement of MCESD Rule 310, and to use of dust control options outlined in the Maricopa County Moderate PM_{10} Area FIP.		
City ordinances have required either paving or dust-proofing parking lot surfacing since 1969. City code requires that all public and private parking lots designed to accommodate at least six vehicles, be paved or dust-proofed.	City paved or dust-proofed three unpaved parking lots (73,000 square feet); City stabilized four vacant lots (559,750 square feet)	City paved or stabilized four parking lots (a total of 129,795 square feet), and three vacant lots (a total of 563,780 square feet).
SURPRISE: 1997/1998 COMMITMENTS - #45 – City will not issue a "Certificate of Occupancy" for any new commercial development if parking lot not paved. #46 - City commits to amendment of Municipal Code to include language requiring installation of signs and barriers where there is evidence of vehicular traffic on disturbed surfaces.		
City has paved all, existing, high-use parking lots. City's zoning ordinance requires that all new parking lots be paved, as developed.	No vacant lots stabilized	City paved 10.763 sq. yards of unpaved City-owned parking lots and applied A/B and millings on 7,500 sq. yards of unpaved overflow parking
TEMPE: 1997/1998 COMMITMENTS - #45 – Improved lots will continue to be maintained to endure dust not a problem. Current effort underway to combine existing nuisance ordinance and neighborhood enhancement ordinance to better facilitate enforcement and citation powers to provide support in meeting City's PM_{10} commitments. #46 - City of Tempe commits to adopt a fugitive dust ordinance patterned after MCESD Rule 310, including: required stabilization after 15 days vacant, or if disturbed by vehicular traffic, and weed abatement.		
City indicates that there are no existing unpaved public parking areas in Tempe.	City stabilized three unpaved parking lots (320,400 square feet); City of Tempe Code Compliance Division received fewer than 20 complaint calls per year, most result from construction activities, and are referred to MCESD	City paved 70,623 sq. feet of unpaved parking lots. City stabilized with Recycled Asphalt Product 101,600 sq. feet of vacant disturbed lots.
TOLLESON: 1997/1998 COMMITMENTS - #45 – Resolution 794 requires that City proceed with good faith effort to implement measures to reduce particulate emissions from unpaved parking lots. #46 - City commits to amendment, by June 10, 2000, of City Ordinance No. 364, Section 9-3-4, Weeds, Bushes, Trees, and Other Vegetation, to include requirements in the EPA proposed FIP. Currently, the majority of vacant lots in Tolleson are farmed, bounded, or are about to undergo development.		
Tolleson indicates that there are currently no unpaved parking lots that exceed the FIP 5,000 square-foot standard requiring stabilization.	City of Tolleson paved or stabilized 90,000 square feet of unpaved parking lots; and stabilized 40,575 square feet of vacant lots. City has no unpaved parking lots.	City has had no unpaved parking areas since the 2001 Milestone Report. City has two vacant lots that have been stabilized (combined size is 14,025 square feet).
YOUNGTOWN: 1997/1998 COMMITMENTS - #45 – City committed to enforcement of ordinance 96-05 which specifies the type of surface on which motor vehicles must be parked, and committed to amending it to include a provision that the improved and dust-free parking surface association with new construction be completed before Town issues its "Certificate of Occupancy." City also committed to adopting ordinances requiring all existing unpaved parking lots greater than 5,000 square feet be dust-proofed no later than June 10, 2000; and requiring that special event parking areas be dust-proofed. #46 - Town commits to adoption of one of three alternatives to reduce particulate emissions from vacant lots, addressing weed abatement and vehicular disturbances of lots. Town commits to treating all of its estimated 28 acres of existing, vacant disturbed lots by January 1, 2000, using each of the dust-proofing techniques recommended.		
Status unknown	Ordinance in effect preventing unpaved surfaces at residential properties and commercial parking lots; vacant lots are covered under Town ordinances and enforced by building code compliance inspector	Town has paved or stabilized 56 parking lots around commercial districts and parks. Town has stabilized 8 vacant lots in commercial and residential districts. Town stabilizes 6.79 miles of unpaved alleys with dust retardant annually.

APPENDIX E – TABLE 3
2004 PM10 MILESTONE REPORT CHART AND SUMMARY
(1999/2000 MAG SIP COMMITTED CONTROL MEASURE IMPLEMENTATION STATUS)

MARICOPA COUNTY: 1997/1998 COMMITMENTS - #45 – Maricopa County committed to identifying parking lots in need of dust-proofing, initiate owner notification, and establish a compliance schedule by December 1998. MCESD's enforcement options include orders of abatement, civil actions for injunctive relief or civil penalties, and Class I misdemeanor citation processes. #46 - County commits to development of a compliance schedule to apply existing fugitive dust regulations to vacant lots 10 acres or greater in size.		
In June 1999, as part of its commitment to increased fugitive dust control, the Maricopa County Board of Supervisors adopted Maricopa County Rule 310.01, which addressed dust control for vacant lots, unpaved parking lots, and public unpaved roads. County committed to a compliance schedule to apply existing fugitive dust regulations to vacant lots ten acres or greater in size.	In April 2000, County developed inspection priorities for vacant lot and unpaved parking lot inspections considering lot size and number of sources. Larger lots were inspected first, and smaller lots in succeeding years. County attention was directed, first, to areas lacking municipal programs. In May 2000, Maricopa County enforcement enhancement began, following the hiring of the county attorney dedicated to dust enforcement. In 2000 and 2001 combined, MCESD: issued 6,484 dust permits; conducted 11,549 earthmoving inspections; conducted 471 vacant lot, unpaved parking lot, and unpaved road inspections; and there were 2,849 earthmoving complaints. A total of 535 cases were referred to enforcement, 341 cases were referred to the county attorney, and 267 cases were settled.	In 2002, MCESD: issued 3,516 dust permits; conducted 7,122 earthmoving inspections; conducted 390 vacant lot, unpaved parking lot, and unpaved road inspections; and 1,171 earthmoving complaints were issued. A total of 391 cases were referred to enforcement; 369 cases were referred to the county attorney; and 290 cases were settled. In 2003, MCESD issued 3917 Earthmoving permits. In July 2003 new databases system was implemented based on Fiscal Year FY03-04 earthmoving inspections totaled 5,257. In FY03-04, a total of 345 cases were referred to enforcement; 283 cases were referred to the County Attorney; and 298 cases were settled.
ADOT		
#45 – ADOT committed to identifying those ADOT unpaved parking lots in need of stabilization or stabilization maintenance, for action following implementation of the FIP. #46 - ADOT commits to enforcement of the provisions of the July 1998 Maricopa County Moderate PM_{10} Area FIP	All ADOT parking surfaces are either paved or stabilized; many vacant lot sites already stabilized. ADOT excess land was inventoried onsite to determine existing and end usage. This review showed a wide range of circumstances; ADOT is currently reviewing options for any identified sites for compliance issues.	ADOT owns 50 properties that have parking lots and most are paved. ADOT inspects and stabilizes the vacant lots every 90 days or more often as needed. Trespassing activities disturb the soil. When trespass occurs, fencing, No Trespassing signs, and other site security correctional activities are logged and tracked by property ID number. ADOT Property Management Group is entering data on inspections into a database including methods used to stabilize the area. Total sq. footage of vacant properties ADOT maintains is 31,320.4 sq. feet or 738,273 acres. 45 of 52 ADOT owned sites with parking lots in the metro Phoenix area are completely paved; one features a paved lot next to a smaller gravel covered parking area. ADOT has English and Spanish Dust Complaint report signs posted at each of 4 access points to its Alluvial Channel property [Parcel 105-46-004F]. A secure gated entry is on the NE portion and the SE corner has been bermed to limit access from 35th Avenue. ADOT works with City of Phoenix police to arrest and cite trespassers. ADOT continues to inspect two land parcels on the NW and SE of 35th Avenue and the Salt River; January 2005 rains created vegetation that has stabilized dust.

Rainfall Totals

January 1-March 1, 2005 Rainfall Totals:

Sky Harbor	4.86”
Cesar Chavez Park	4.84”
Salt River @ 40th St .	3.78”
Salt River @ Priest Drive	5.83”
Salt River @ 67th Ave.	4.73”
Salt River Landfill	7.05”

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Appendix F

Maricopa County's Air Quality's Inspection Prioritization Plan for Vacant Lots.
And
Workload Analysis for Earthmoving and Vacant Lot Programs

107502

Maricopa County
Air Quality Department

Robert Kard, Director
1001 North Central, Ste 500
Phoenix, Arizona 85004-1950
Phone: (602) 506-6701
Fax: (602) 506-7303

May 2, 2005

Ms. Nancy Wrona, Director
Air Quality Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Dear Ms. Wrona:

Enclosed is supplemental information pertaining to the Maricopa County Air Quality Department's (MCAQD) implementation of vacant lot and earthmoving fugitive dust control programs. The supplemental information supports MCAQD's state implementation plan (SIP) commitments for the Salt River Area, submitted to ADEQ on February 10, 2005.

Enclosure 1 contains MCAQD's inspection priority plan for vacant lots/open areas and unpaved parking lots. Submittal of this inspection priority plan to EPA is one component of our commitment to improve clarity and enforceability of Rule 310.01 and develop a strategy for proactive vacant lot/open area and unpaved parking lot inspection.

Enclosure 2 contains MCAQD's workload analysis for the earthmoving and vacant lot programs. The workload analysis supports MCAQD's Salt River SIP commitment to improve compliance with Rule 310 and to develop a strategy for proactive vacant lot/open area and unpaved parking lot inspections. The workload analysis also supports the assumptions in the Salt River SIP attainment demonstration to increase rule effectiveness for construction, alluvial, vacant lots, miscellaneous disturbed areas, and unpaved parking lots.

If you have any questions regarding the enclosed information, please contact Jo Crumbaker at (602) 506-6705.

Sincerely,

Robert Kard

Robert Kard, Director

Enclosures

Enclosure 1:

Inspection Priority Plan for Vacant Lots/Open Areas and Unpaved Parking Lots in Maricopa County

Inspection Priority:

1. Vacant lots/open areas and unpaved parking lots targeted due to a Citizen's Complaint shall be inspected as soon as possible. Such inspections shall be conducted prior to proactive inspections.
2. Vacant lots/open areas, including alluvial channels and unpaved parking lots located within the Salt River Study area of the PM_{10} nonattainment area shall be inspected prior to other locations.
3. Vacant lots/open areas and unpaved parking lots located in areas with soil texture(s) that may consist of high silt content and increased wind erosion potential shall be inspected prior to locations with soil textures that may consist of low silt content and lesser wind erosion potential.
4. Vacant lots/open areas and unpaved parking lots in excess of ten acres shall be targeted for inspection prior to vacant lots/open areas and unpaved parking lots less than ten acres.
5. Vacant lots/open areas and unpaved parking lots located outside of the Salt River Study area of the PM_{10} nonattainment area, but within the borders of the Maricopa County PM_{10} nonattainment area shall be targeted for a proactive inspection prior to locations outside of the PM_{10} nonattainment area.
6. Vacant lots/open areas and unpaved parking lots known and/or reported to be located in close proximity to schools, health care facilities, assisted care facilities, residential neighborhoods, parks, etc. shall be targeted for inspection prior to other vacant lots/open areas and unpaved parking lots.

Parcel Identification and Inspection Priority Methodology:

Inspections of vacant lots/open areas and unpaved parking lots will be located and classified via a combination of the following: complaint investigations, field observations, the Maricopa Association of Governments "Soil Texture within PM_{10} Nonattainment Area" map, the Maricopa County Assessor's GIS website and/or aerial photographs. Site inspections will be prioritized as per the inspection priority criteria established above.

Inspection Rotation/Re-inspection Schedule:

An inspection rotation schedule will be established upon implementation of the Accela's Permit Plus application database. This database will allow for inspector's to assign a numerical value, code, etc. to vacant lots/open areas and unpaved parking lots that have been previously inspected. Vacant lots/open areas and unpaved parking lots will only be assigned such a value once all necessary follow up actions associated with the initial inspection of the particular site have been completed. The assignment of such a value will be used to create a "dust generating potential" rating system that will assist in the scheduling and prioritizing of sites for re-inspection. The rating system will be based on the proposed following criteria;

1. High potential for fugitive dust generation – e.g., sites $\geq$10 acres, potentially ineffective physical barriers, history of motor vehicle and/or off-road vehicle trespass, signage is only implemented control measure, etc.
2. Intermediate potential for fugitive dust generation – e.g., < 10 acres, current control measures/barriers appear to be effective, gravel and/or dust palliative application, significant vegetative cover, etc.
3. Minimal potential for fugitive dust generation – vertical structure(s), permanent landscaping, paved, significant physical barriers, de minimis disturbed areas, etc.

Enclosure 2:

Workload Analysis for Earthmoving and Vacant Lot Programs

Table 1 contains Maricopa County Air Quality Department's (MCAQD) workload analysis for the earthmoving and vacant lot programs. The analysis is based on projected FY05-06 earthmoving permits and estimated vacant parcels located within the Maricopa County PM_{10} nonattainment area. The estimated number of inspections is based on 1,400 annual work hours per inspector and the assumption that the programs are fully staffed for the entire year.

Table 1: Workload Analysis for Earthmoving and Vacant Lot Programs

EARTHMOVING	FY05-06 Permits	Inspection Frequency	Inspections/ Year	Hours Per Inspection	Total Hours	FTEs Needed
Simple Parcels (1.0 to 10 acres)	3,397	1	3,397	1.75	5,944	4.2
Complex Parcels (> 10 acres)	1,151	5	5,755	3.75	21,581	15.4
Total	4,548		9,152		27,526	19.7
VACANT LOTS	**FY05-06 Parcels**	**Inspection Frequency**	**Inspections/ Year**	**Hours Per Inspection**	**Total Hours**	**FTEs Needed**
Simple Parcels (< 10 acres)	102,201	1.6%	1,600	1.75	2,800	2.0
Complex Parcels (>= 10 acres)	3,754	79.6%	2,987	3.75	11,201	8.0
Total	105,955		4,587		14,001	10.0

Fiscal year 2003-04 earthmoving permit numbers were obtained from the earthmoving permit program manager and were projected to fiscal year 2005-06 assuming a 5.0% increase per year based on the average annual increase in earthmoving permits between fiscal year 2001 to 2004.[1]

The number and size of vacant lot parcels were obtained from an analysis conducted by the Maricopa Association of Governments (MAG) using the Maricopa County Assessor Parcel GIS file, dated October 2003. The MAG analysis identified 117,541 assessed vacant parcels in the Maricopa County PM_{10} nonattainment area. Of the 117,541 vacant parcels, 113,377 were < 10 acres in size and 4,164 were >= 10 acres in size.[2] The Arizona Department of Environmental Quality projected the amount of vacant lots and miscellaneous disturbed areas to decrease 13.6% between 2002 and 2006 due to conversion of vacant lots and miscellaneous disturbed areas to residential and commercial uses.[3] Consequently, MCAQD has assumed a 3.4% decrease in vacant parcels each year.

Table 2 summarizes the FTEs needed based on the earthmoving and vacant lot workload analyses and shows the existing and additional FTEs approved by the Maricopa County Board of Supervisors.

Table 2: Earthmoving and Vacant Lot Compliance FTE Summary

	FTEs Needed	Existing FTEs	Addt'l FTEs Approved	Total FTEs
EARTHMOVING				
Field FTEs	20	8	12	20
Supervisor/Mgr FTEs	5	1	4	5
Admin. Support FTEs	5	2	3	5
VACANT LOTS				
Field FTEs	10	0	10	10
Supervisor/Mgr FTEs	-	0	-	-
Admin. Support FTEs	-	0	-	-
Total	40	11	29	40

The workload analysis indicates that 20 earthmoving field FTEs and 10 vacant lot field FTEs are needed. MCAQD currently has 8 field FTEs, 1 program manager, and 2 administrative support FTEs in its earthmoving program. In September 2004, the Maricopa County Board of Supervisors approved hiring of 12 additional earthmoving field FTEs as well as 4 supervisor/lead FTEs and 3 administrative assistant FTEs. Once fully staffed the earthmoving program will include: 20 field FTEs, 4 supervisor/lead FTEs, 1 program manager FTE, and 5 administrative support FTEs. The workload analysis for the vacant lot program indicated that 10 field FTEs are needed. In January, the County Board of Supervisors committed to hiring 10 new vacant lot field FTEs.

The department will also increase its enforcement staff to support earthmoving and vacant lot compliance activities. The air quality enforcement unit will consist of 1 program manager, 1 supervisor, and 3 enforcement officers. Dust related enforcement actions are expected to encompass 75—90% of the enforcement unit workload.

[1] Actual and Projected Earthmoving (EM) Permit Numbers

Parcel Size	FY01-02* Actual	FY02-03** Actual	FY03-04 Actual	FY04-05 Projected	FY05-06 Projected
Simple Parcels (1.0 to 10 acres)	2,658	2,977	3,081	3,235	3,397
Complex Parcels (> 10 acres)	950	1,064	1,044	1,096	1,151
Total	3,608	4,041	4,125	4,331	4,548

* May reflect calendar year 2001 rather than FY01-02

** Earthmoving permit numbers from database from May 2002 - May 2003 per 9/29/03 email from Cameron Flower.

[2] Number of Vacant Lot Parcels in the PM_{10} Nonattainment Area

Parcel Size	FY02-03	FY03-04	FY04-05	FY05-06
parcels < 10 acres	113,377	109,522	105,798	102,201
parcels >= 10 acres	4,164	4,022	3,886	3,754
Total	117,541	113,545	109,684	105,955

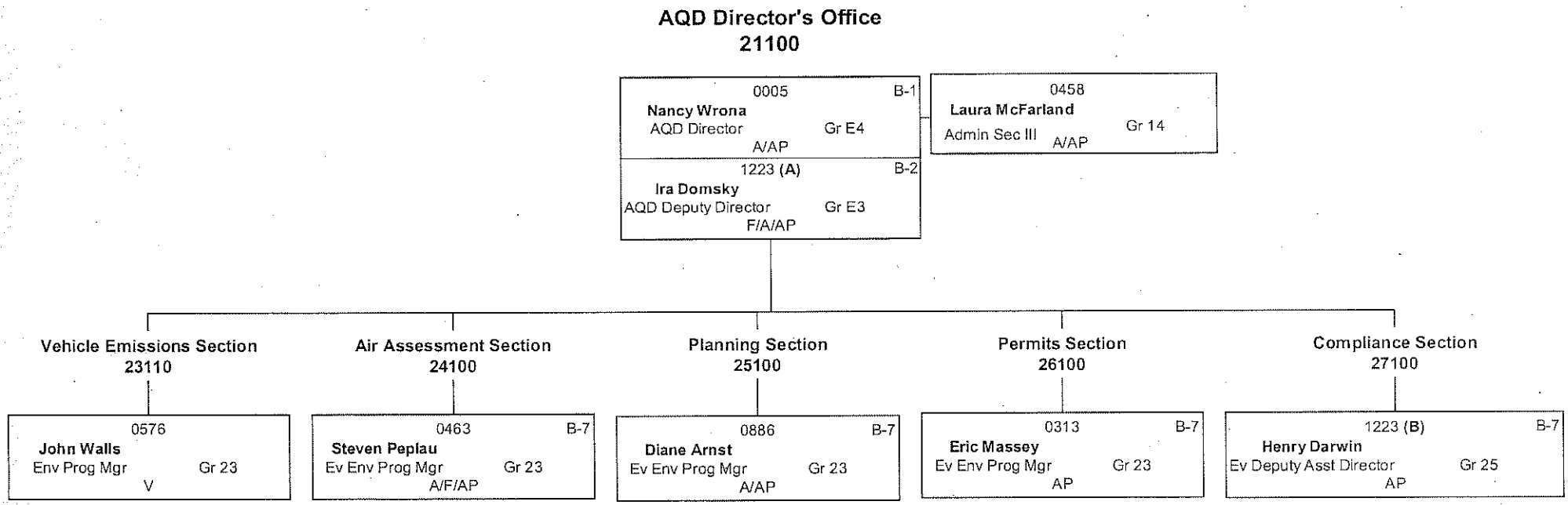
Source: E-mail from Cathy Arthur, MAG, dated August 30, 2004.

[3] ADEQ Proposed Revised PM_{10} SIP for the Salt River Area, Technical Support Document, June 2004, p. 4-42.

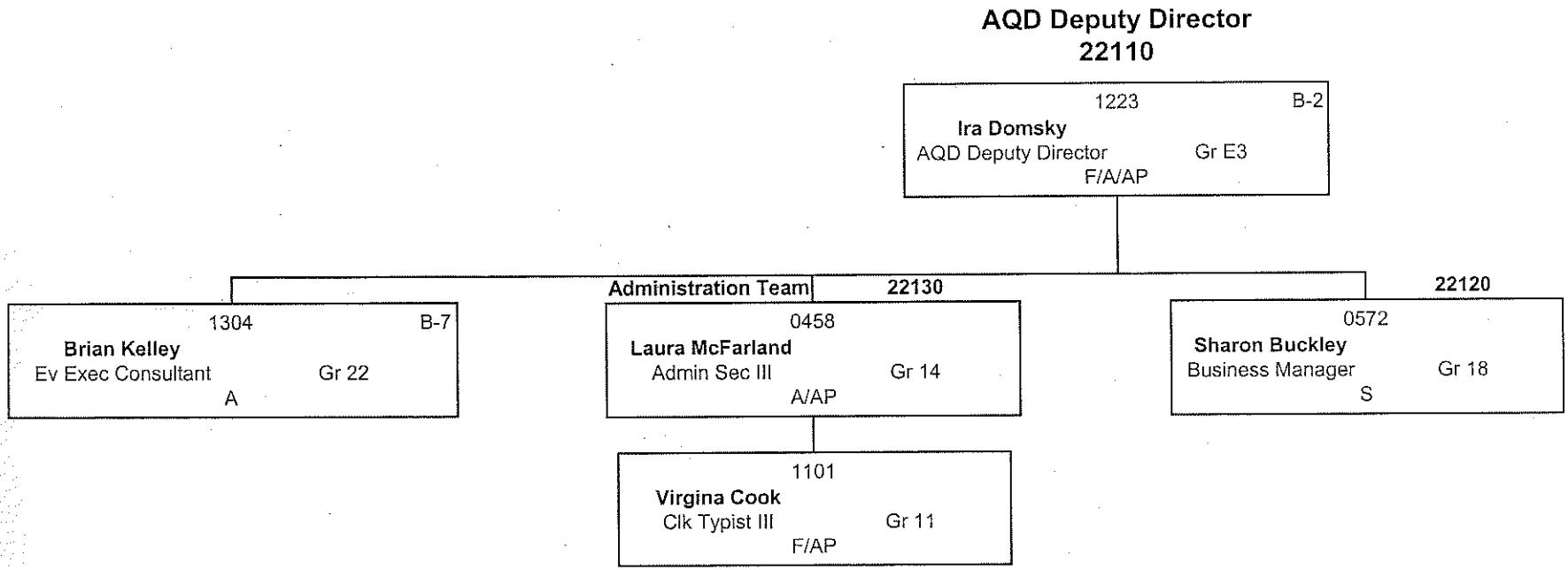
Attachment 1

ADEQ AIR QUALITY DIVISION ORGANIZATIONAL CHARTS

Arizona Department of Environmental Quality
Air Quality Division

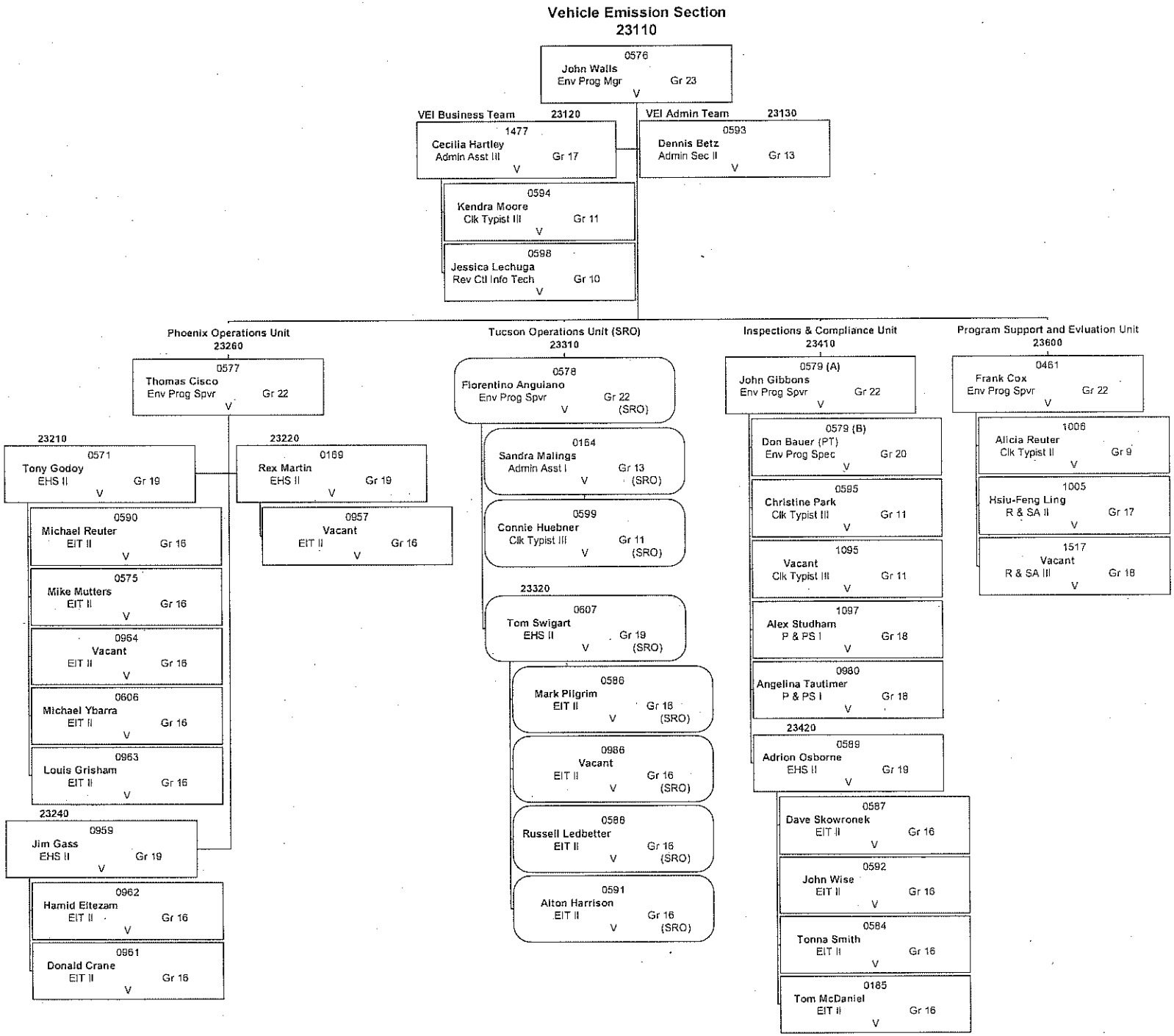


Arizona Department of Environmental Quality
Air Quality Division

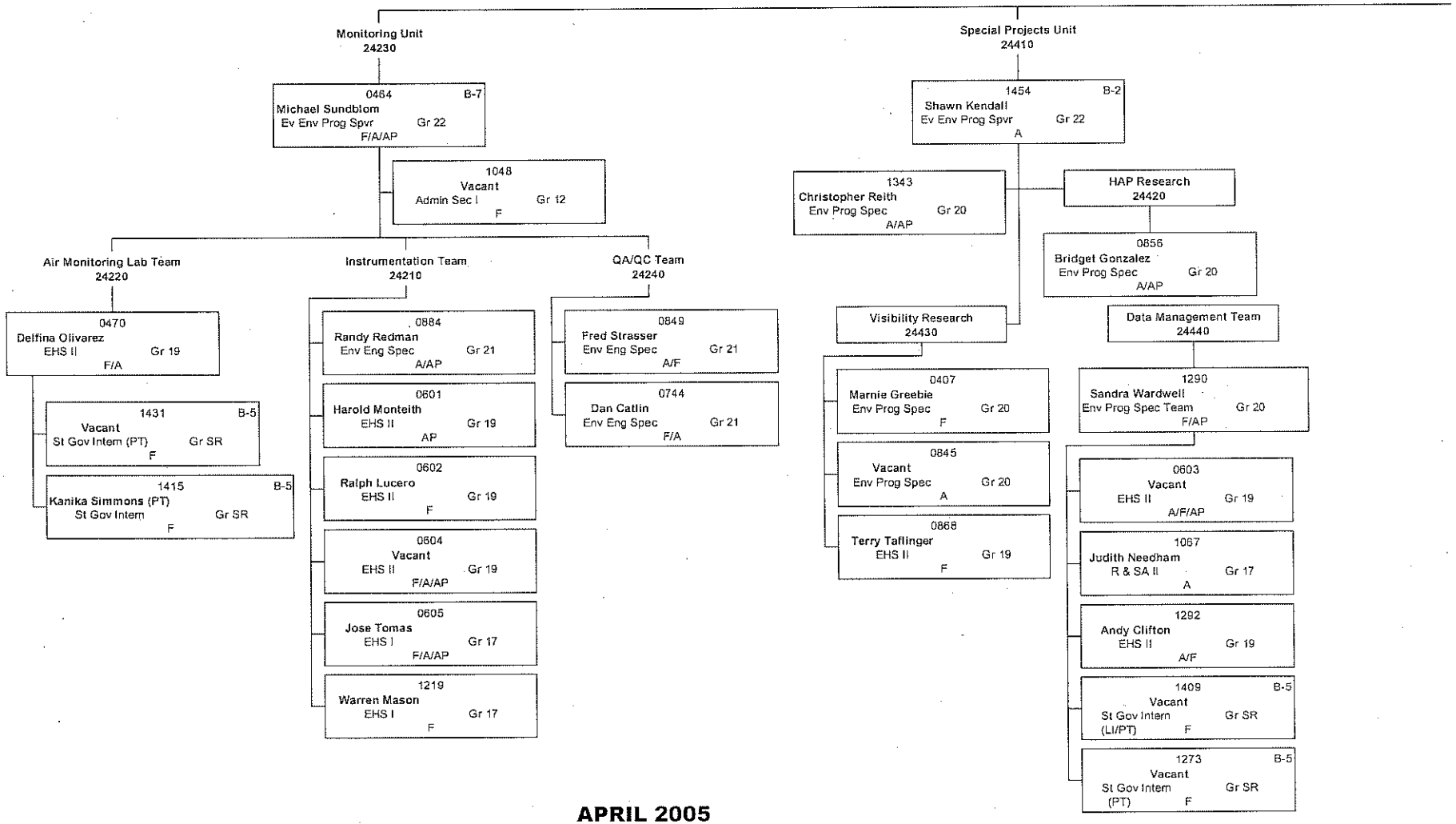


Arizona Department of Environmental Quality

Air Quality Division



Arizona Department of Environmental Quality
Air Quality Division
Air Assessment Section



APRIL 2005

Arizona Department of Environmental Quality
Air Quality Division
Air Assessment Section

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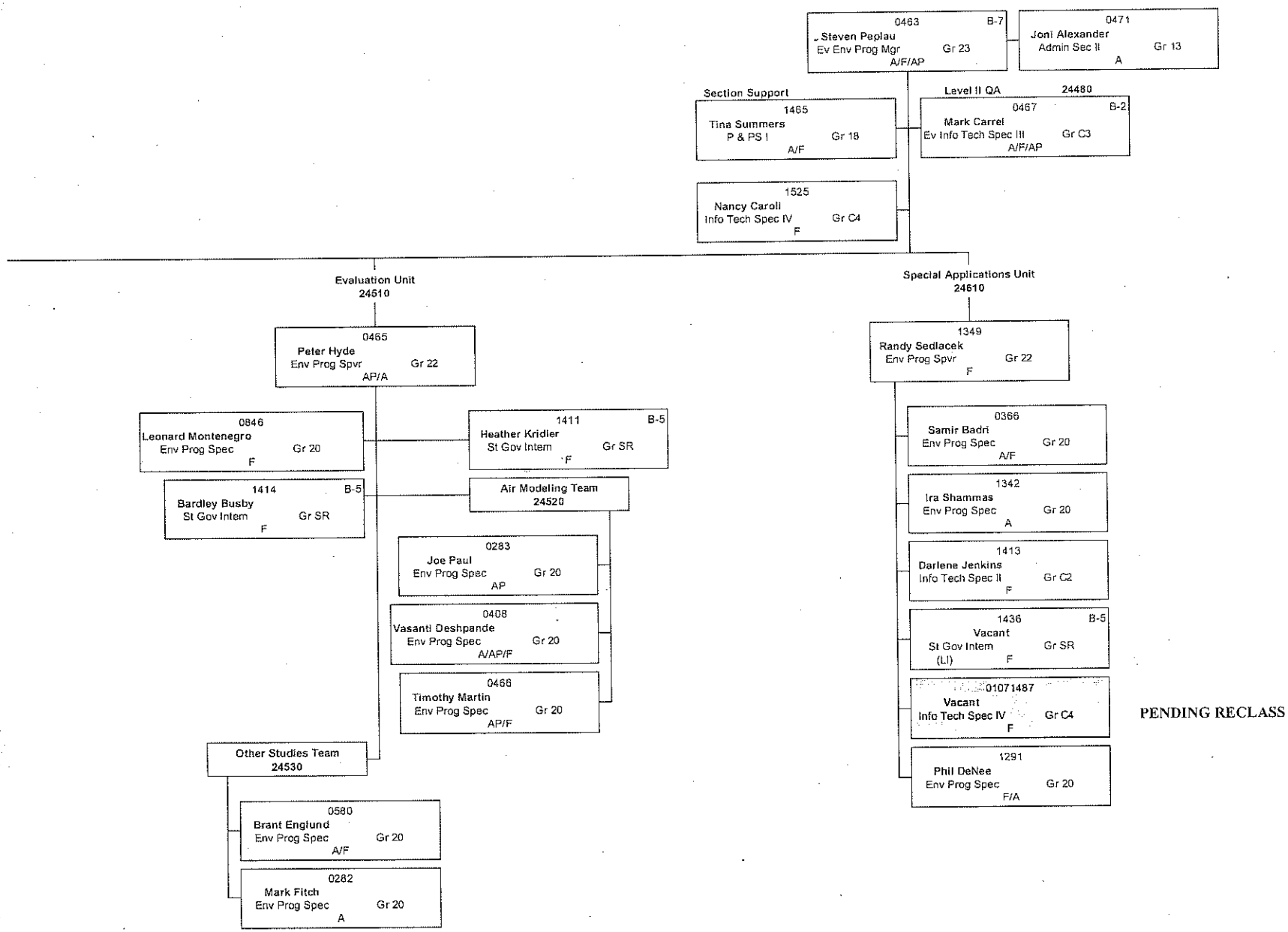

PENDING RECLASS

MARCH 2005

April 2005

Arizona Department of Environmental Quality
Air Quality Division

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25100

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A/AP

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Mark Lewandowski
Ev Env Prog Spvr Gr 22
F

SIP Team
25220

0705
Deborrah Martinkovic
Env Prog Spec Gr 20
A/F

0676/1526
Vacant
Planner II Gr 19
A

Uncover Pending Paperwork

0674
Andra Juniel
Planner II Gr 19
F

0891
Lela Prashad
EHS II Gr 19
F/A

Rules Team
25230

0889
Andrey Cockrell
Env Prog Spec Gr 20
F/AP

1302B B-7
Marvin Martin
Planner II Gr 19
F

0892
Michele Mutchek
EHS II Gr 19
AP/A

1302 B-5
Bruce Friedl
Ev Env Prog Spec Gr 20
F

1179 B-7
Kevin Force
Ev Env Rules Spec Gr 21
A

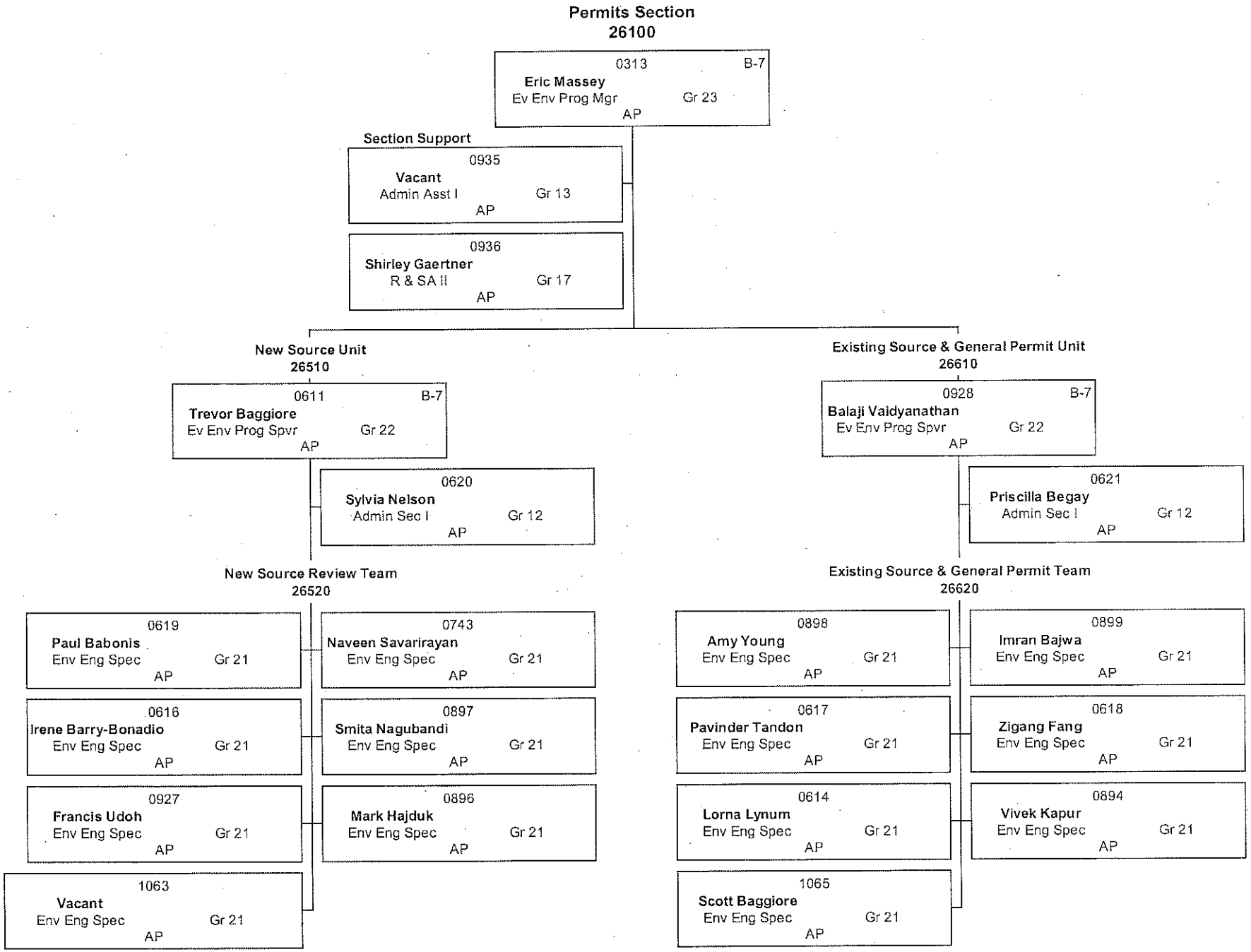
Fund & Project Management Unit
25300

0853
David Biddle
Env Prog Spec Gr 20
A

1169
Sondra Francis
P & PS II Gr 19
F/A

0887 B-2
Vacant
Ev P & PS II Gr 19
A

Arizona Department of Environmental Quality
Air Quality Division



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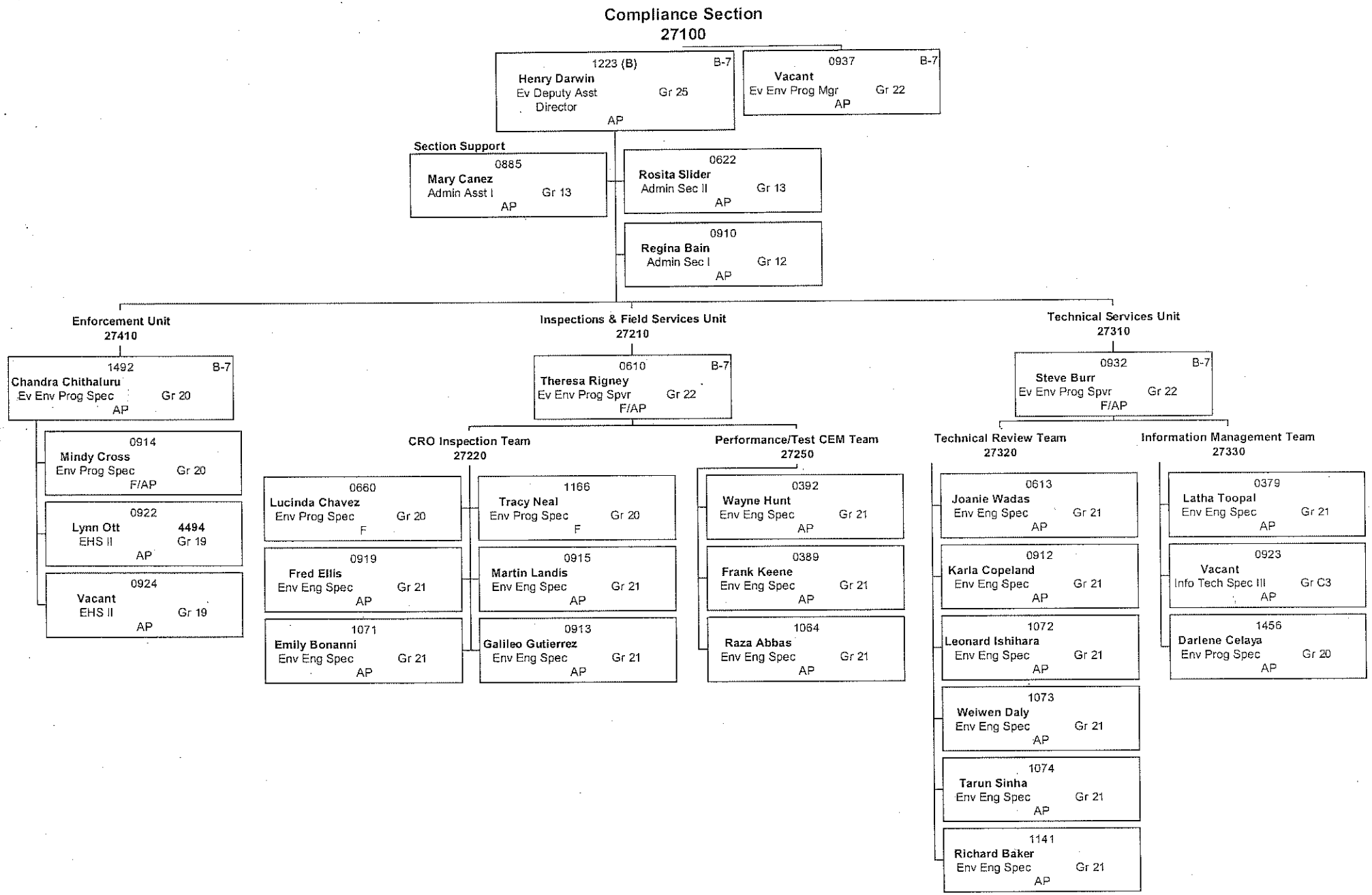

Arizona Department of Environmental Quality
Southern Regional Office