



**NERT SITE-WIDE DUST CONTROL WORK  
PLAN  
HENDERSON, NEVADA**

*Prepared for:*

**Nevada Environmental Response Trust**

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**July 10, 2015**

## CERTIFICATION

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations, and ordinances.

**Description of Services Provided:** NERT Site-Wide Dust Control Work Plan, Nevada Environmental Trust Site, Henderson, Nevada



July 10, 2015

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**Kyle Hansen, CEM**

Field Operations Manager/Geologist  
Tetra Tech, Inc.

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Date

Nevada CEM Certificate Number: 2167

Nevada CEM Expiration Date: September 18, 2016

## LIST OF ACRONYMS

AQR	Air Quality Regulations
BMI	Black Mountain Industrial
BMP	Best Management Practices
CAO	Corrective Action Order
CCDAQEM	Clark County Department of Air Quality Environmental Management
DCSC	Dust Control Site Coordinator
ETI	Envirogen Technologies, Inc.
GWETS	Groundwater Extraction and Treatment System
GWTP	Groundwater Treatment Plant
NERT	Nevada Environmental Response Trust
PEP	Particulate Emission Potential
PM10	Particulate Matter Less Than 10 Microns

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## 1.0 INTRODUCTION

This Dust Control Work Plan has been prepared to formulate a strategy for controlling fugitive and airborne dust emissions for the Nevada Environmental Response Trust (NERT or Trust) property in Henderson, Nevada. The Trust took title to the former Tronox site in Clark County, Nevada ("Site") on February 14, 2011 as part of the resolution of Tronox's bankruptcy. The NERT Site is an approximately 346-acre area that is part of the larger Black Mountain Industrial (BMI) Complex. Tronox has a long-term lease for approximately 114 acres of the Site (Figure 1) and actively manages Site security, health and safety, dust control, and infrastructure improvements for its leased areas.

Access to portions of the remaining 232 acres have been historically managed by the Groundwater Treatment and Extraction System (GWETS) Operator (Envirogen/Violia) as they were the only entity with a continued presence on the non-leasehold portion of the NERT property. Currently the Trust has a full-time staff member (40 hours/week) based in an office adjacent to the GWETS Operator. There are several consulting firms and contractors working on the Site, each of which poses the potential to impact the Site's compliance with the fugitive dust requirements in the Clark County Air Quality Regulations (AQRs).

The primary objective of this Dust Control Work Plan is to facilitate NERT Site-wide compliance with the Clark County AQRs. This objective will be accomplished by identifying specific sources and activities with the highest potential to produce or generate fugitive or airborne dust emissions, and by developing and implementing procedures and management processes that facilitate control of these sources activities. This plan, designed to address ongoing and planned Site activities, will need to be modified in response to new site conditions or activities or to changes to the Clark County fugitive dust AQRs.

Compliance with this plan will be the responsibility of the NERT Dust Control Site Coordinator (DCSC) and the site occupants (consulting firms/operators). The DCSC shall be designated by the Trust to oversee implementation of this Work Plan.

The remainder of this Work Plan is organized as follows:

- Section 2.0 provides additional project background information including project objectives and a Site description;
- Section 3.0 describes the project area characteristics, such as soil and wind conditions, water sources, and areas of higher dust emission potential;
- Section 4.0 presents the applicable regulatory dust control requirements;
- Section 5.0 describes reasonably available control measures;
- Section 6.0 provides additional implementation steps and reporting requirements;
- Section 7.0 outlines the process by which adjacent property dust emissions are managed;
- Section 8.0 provides area-specific requirements for managing dust emission potential;
- Section 9.0 specifies dust control responsibilities for the areas to be managed by the onsite consultants; and

- Section 10.0 provides the references cited.

## 2.0 PROJECT BACKGROUND

### 2.1 Project Objectives

The objective of this NERT Site-wide Dust Control Work Plan is to define and implement procedures and management processes to facilitate Site-wide compliance with the Clark County AQRs for activities or projects that do not require a Dust Control Permit. This Work Plan applies to general site operations and projects or activities which are below Clark County Department of Air Quality Environmental Management (CCDAQEM) thresholds. Projects below the permit thresholds include:

- Soil-disturbing projects less than 0.25 acres;
- Demolition of any structure less than or equal to 1,000 sq. ft.; and
- Trenching operations less than 100 feet in length.

### 2.2 Dust Control Principles

It is the Trust's objective to implement a Site-wide Dust Control Work Plan using Best Management Practices (BMPs). This work plan is based upon the following BMPs:

- Site security, access, and maintenance will be coordinated by one controlling entity (NERT or its designee).
- Separate areas of operational responsibility will be delineated for each on-site consulting group and adjusted based on active scopes of work.
- Frequency and implementation methods for dust suppression and general site surface maintenance activities will be established based on regulatory requirements.
- Areas of restricted access will be defined and protocols will be established to minimize crust breaking activities such as vehicle transit within restricted areas.
- Routine inspections of the non-leased parcels for unauthorized encroachment and associated activities that result in crust breaking will be required.

### 2.3 Site Location and Description

The NERT Site comprises approximately 346 acres of the BMI complex in an unincorporated portion of Clark County that is surrounded by the City of Henderson, Nevada. The NERT Site has been the location of industrial operations since 1942 when it was developed by the U.S. government as a magnesium plant to support World War II operations. Following the war, the industrial activities, including production of perchlorate, boron, and manganese compounds, continued at the BMI complex. Former industrial and waste management practices conducted at the NERT Site, as well as those conducted on adjacent properties, resulted in on- and off-site impacts to soil, groundwater, and surface water.

Tronox LLC (Tronox) formerly owned and operated a portion of the BMI complex including the entire 346 acre area now owned by NERT. In conjunction with the settlement of Tronox's bankruptcy proceeding, NERT now owns the former Tronox site and leases back 114 acres of the site. The effective date of the property title transfer and assumption of responsibilities by NERT was February 14, 2011.

## 3.0 PROJECT AREA CHARACTERISTICS

The Trust presently has a fulltime staff member (40 hours/week) working from an office adjacent to the GWETS Operator. There are also several consulting firms and contractors working on the Site, each of which conducts activities that have the potential to negatively impact the Site's compliance with the fugitive dust requirements in the Clark County AQRs. These activities include ongoing plant maintenance activities, routine sampling events, and new facility construction projects. Fugitive dust control for new construction projects will be governed by task-specific permits filed in compliance with CCDAQEM regulations when the task exceed the thresholds specified in Section 2.1, whereas this Work Plan addresses the ongoing maintenance of potential dust generating areas and BMPs for general site operations and for projects below the threshold limits.

### 3.1 Soil Conditions

The Site is located on alluvial fill that is composed predominantly of silty sand with gravel. This soil type is generally categorized with moderately low particulate emission potential (PEP), but it is susceptible to erosion due to the lack of vegetation, binding clays, or cementation. During interim soil removal actions performed between August 2010 and November 2011, several areas were excavated and graded, and an earthen dam was placed near the eastern end of the Beta Ditch. Several retention basins were created during this work, and the Site was reclassified as a zero-discharge property. There are two main storm water retention basins, the Central Retention Basin and the Northern Retention Basin, and several minor basins (northwest corner of the Site and north of F Street), as shown on Figure 2. The Central Retention Basin collects surface runoff from the Tronox-leased area. The Northern Retention Basin collects surface runoff water from north of the former Beta Ditch (located near the center of the Site) and accepts overflow from the Central Retention Basin. As these basins receive storm water runoff, there has been an accumulation of fine sand and silt in the upper crust, creating a moderately high PEP soil condition (Figure 2).

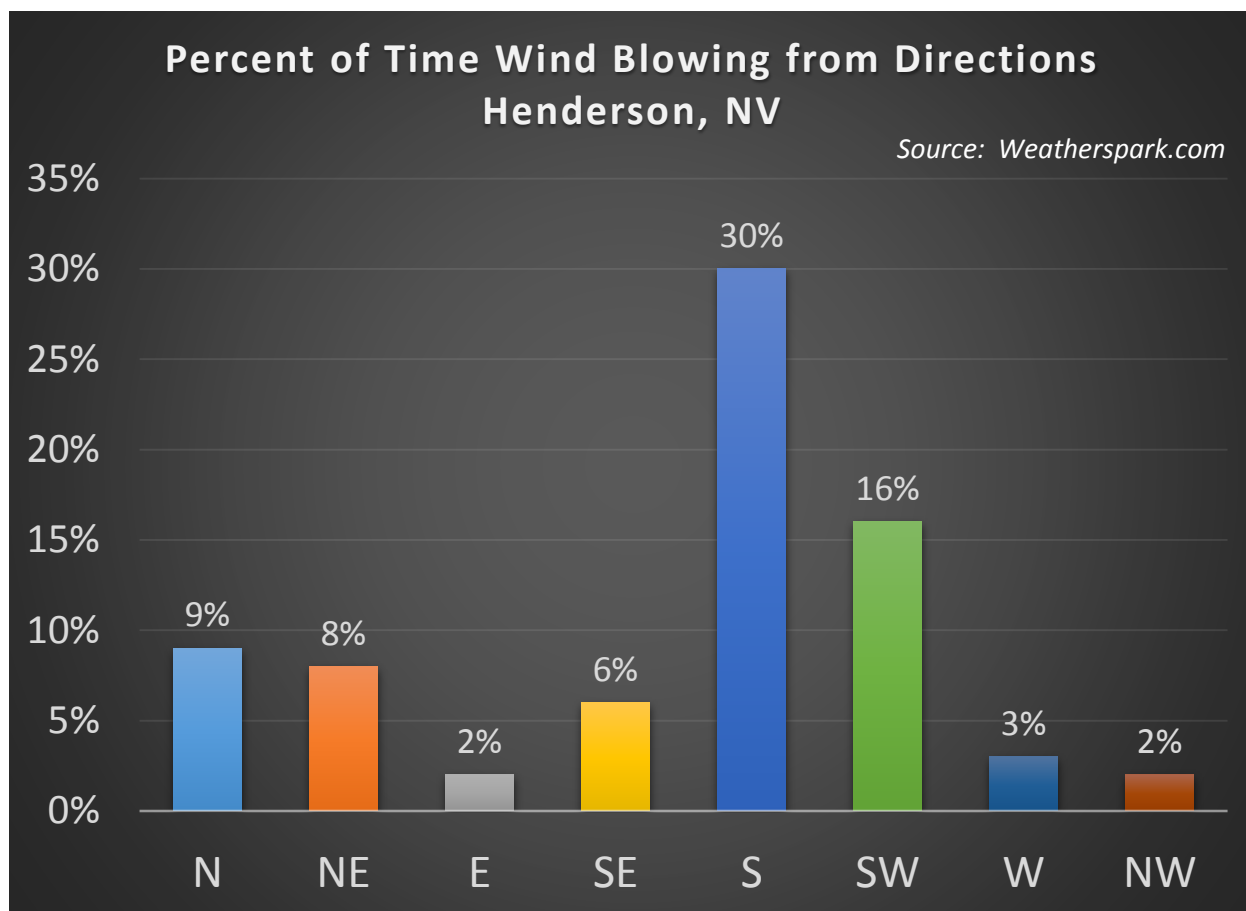
### 3.2 Prevailing Wind Conditions

The bar chart on the next page, which is based on records for the period 2003 to 2012, shows prevailing winds at the Site to be from the south and southwest nearly fifty (50) percent of the time. Prevailing winds reach their peak in the month of April, during which the daily maximum wind speed is ~9 meters/second (m/s)<sup>1</sup>. The lowest average wind speed of ~3 m/s occurs in the month of December, during which the average daily maximum wind speed is ~6 m/s. A wind rose representing a composite of the wind speed and direction at McCarran International Airport for the period 2003 through 2011 is shown on Figures 1 – 3.

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<sup>1</sup> This wind speed corresponds to a daily maximum wind speed of 21 mph for April 4 as reported by weatherspark.com.





### 3.3 Water Source

Water required for general site dust control and projects subject to this Work Plan will be obtained from existing fire hydrants at the Site. These hydrants, which are serviced by Basic Management, Inc., utilize stabilized Lake Mead water. Stabilized Lake Mead water provides a reliable and sufficient water supply to perform dust control activities.

### 3.4 Potential Dust Sources

The following represent potential fugitive dust sources at the Site:

- Soil and fill loading and unloading operations;
- Soil backfill placement, grading and compacting;
- Vehicles and equipment driving on paved roads during construction and normal operations;
- Vehicles and equipment driving on unpaved roads/pathways during normal operations;
- Soil and fill stockpile storage;
- Wind erosion of areas disturbed during construction activities;
- Wind erosion of areas disturbed during routine sampling activities; and
- Wind action on unprotected spoil piles or material storage areas.

## 4.0 APPLICABLE DUST CONTROL REQUIREMENTS

The Site is located in a Particulate Matter Less Than 10 Microns (PM-10) Nonattainment Area. The Clark County Code requires compliance with the fugitive dust AQRs as incorporated into Section 9.08.130 in the PM-10 Non-Attainment Areas, which include the following:

- Section 90 – Fugitive Dust From Open Areas and Vacant Lots;
- Section 91 – Fugitive Dust From Unpaved Roads, Alleys and Easements;
- Section 92 – Fugitive Dust From Parking Lots and Storage Areas;
- Section 93 – Fugitive Dust From Paved Roads and Street Sweeping; and
- Section 94 – Permitting and Dust Control for Construction Activities.

These regulations prohibit visible dust emissions beyond the property lines for periods aggregating more than 3 minutes in any 60-minute period. The regulation provisions apply to any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas. The regulations do not specify dust control measures that must be used to ensure that visible dust emission do not cross the property lines. A copy of these Sections from the Clark County Air Quality Regulations, as they appear in Attachment 5 of the Construction Activities Dust Control Handbook Amended July 1, 2014, is provided in Appendix A. The applicable regulations are summarized in Sections 4.1 – 4.5.

Failure to comply with Sections 90 – 94 of the Clark County AQRs will result in potential penalties being assessed for the following classes of violations:

- Violations of permit conditions;
- Failure to maintain soils in a damp, crusted, or stabilized condition, or to clean track-out from paved roads;
- Fugitive dust emissions; and
- Non-compliance with Corrective Action Order (CAO).

The maximum penalties can reach \$10,000 per day, per offense.

### 4.1 Section 90 – Open Areas and Vacant Lots

This regulation applies to open areas and vacant lots that are 5,000 square feet or larger. It stipulates that if an open area or vacant lot is disturbed by any means, then the owner/operator shall implement one or more of the control measures described in Section 5.0 of this document within 30 calendar days following the initial discovery of the disturbance. With respect to the Site, Section 90 is primarily applicable to the basins created as a result of the soil removal activities. This section also stipulates that the owner/operator shall implement all control measures necessary to limit the disturbance of open areas and vacant lots. The regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable or helpful in various scenarios.

### 4.2 Section 91 – Unpaved Roads, Alleys and Easements

This regulation applies to any unpaved road in the PM-10 non-attainment area. It stipulates that the owner/operator of an unpaved road shall implement one of the approved control measures (e.g., pave, apply dust palliatives, or apply and maintain alternative control measures). The

regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable in various scenarios.

### **4.3 Section 92 – Parking Lots and Storage Areas**

This regulation applies to unpaved parking lots and storage areas that are utilized intermittently for a period of 35 days or less during a calendar year. It stipulates that the owner/ operator shall implement one or more of the control measures described in this section during the period that the unpaved parking lot or storage area is utilized for vehicle parking or storage. If an area is used for storing and handling aggregate and other similar bulk materials, the owner/operator shall implement one of the control measures (e.g., pave, apply dust palliatives, or apply and maintain alternative control measures). The regulation differentiates between on-road and off-road vehicles requiring that all access, parking, and loading areas used by on-road vehicles shall be paved. If an area is used primarily for storage of non-rubber tired vehicles or equipment that is of such weight as to damage or destroy pavement (e.g., heavy equipment), the owner/operator shall implement one or more of the alternative control measures. Appendix A list the performance/stabilization standards and record keeping requirements.

### **4.4 Section 93 – Paved Roads and Street Sweeping**

This regulation applies to paved roads. For purposes of this regulation, the unpaved shoulders and medians of paved roads shall be considered to have control measures effectively implemented when fugitive dust emissions do not exceed 20% opacity and silt loading does not equal or exceed 0.33 oz/ft<sup>2</sup>. The silt loading threshold does not apply to unpaved shoulders on which gravel has been applied. Where gravel is utilized to prevent track out of mud and dirt from the unpaved shoulders and medians of the paved roads, surface gravel shall be uniformly applied and maintained to a depth of two (2) inches to comply with the 20% opacity standards. For purposes of this section, the term “gravel” means unconsolidated material greater than 0.25 inch but less than three (3) inches that contains no more than six (6) percent silt by dry weight.

Any owner/operator which utilizes street sweeping equipment on paved surfaces shall acquire only certified PM-10-efficient street sweeping equipment. The use of dry rotary brushes and blower devices for the removal of dirt, rock, or other debris from a paved road or parking lot is prohibited without the use of sufficient wetting to limit the visible emissions to not greater than 20% opacity. The use of dry rotary brushes or blower devices without the use of water is expressly prohibited. Appendix A lists the performance/stabilization standards, test methods, and record keeping requirements.

### **4.5 Section 94 – Permitting and Dust Control For Construction Activities**

This regulation applies to construction activities. Prior to engaging in any construction activities, unless exempted based on exclusions identified in the bullets below, the property owner/operator shall obtain a Dust Control Permit from CCDAQEM. A Dust /Control Permit is not required for the following:

- Soil disturbing activities less than 0.25 acre in over area;
- Mechanized trenching less than one hundred (100) feet in length; and
- Mechanical demolition of any structure smaller than one thousand (1000) square feet.

All applications for projects requiring a Dust Control Permit shall include a dust mitigation plan with appropriate control measures from the Construction Activities Dust Control Handbook. An application for a Dust Control Permit for a project ten (10) acres or more in area, or for trenching

activities one (1) mile or greater in length, shall be required to submit a detail supplement to the dust mitigation plan.

An application for a project of fifty (50) acres or more in area shall contain an actual soils analysis of the entire project. Any construction project having 50 acres or more of actively disturbed soil at any given time shall be required to have in place an individual designated as the Dust Control Monitor. The Dust Control Monitor shall have full authority to ensure that dust control measures are implemented, including inspections, record keeping, deployment of resources, and shutdown or modification of construction of activities as needed.

The regulations attached in Appendix A provide more specific standards, control measures, and test methods as may be applicable in various scenarios.

## 5.0 CONTROL MEASURES

This section describes active and standby fugitive dust control measures that may be employed at the Site for those projects or activities that do not require a Dust Control Permit.

### 5.1 Reasonably Available Control Measures

The following measures may be employed to reduce the amount of fugitive dust generated from routine Site activities and projects subject to this Work Plan. The Trust will implement reasonably available control measures BMPs when and where appropriate as follows:

1. Rock aprons and/or rattle plates will be installed as needed at the intersections of dirt access roads and paved public roadways to clean the tires of equipment prior to leaving the Site.
2. All active construction areas, unpaved access roads, parking areas, and staging areas will be watered or stabilized with water (or non-toxic soil stabilizers) as needed to control fugitive dust.
3. All inactive land areas will be inspected at least monthly to determine if re-crusting of the soil is warranted through the application of stabilized Lake Mead water or other engineered palliative.
4. Fencing or signage will be posted to prevent access and additional disturbance.
5. Areas of high silt content (detention basins) will be pre-watered up to 48 hours in advance of vehicle transit associated with sampling activities.
6. Chemical soil stabilizers or water will be applied to form and maintain a crust on inactive construction areas (disturbed lands that are unused for 14 consecutive days).
7. Import and export dirt, sand or loose material will be pre-moistened prior to transport.
8. Paved streets will be swept or cleaned with mechanical sweepers if visible soil material is carried onto them by Site activities.
9. Exposed stockpiles will be covered and watered or stabilized with nontoxic soil binders as needed to control emissions.
10. Trucks transporting bulk materials will be completely covered unless 2 feet of freeboard space for the top of the container is maintained with no spillage and loss of material.
11. The cargo compartment of all haul trucks will be cleaned and/or washed at the delivery site after removal of the bulk material.
12. Movement of bulk material or transfer material must be stabilized prior to handling or at a point of transfer, with the application of sufficient water to chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
13. Traffic speeds on unpaved roads or pathways will be limited to 10 miles per hour.
14. During wind events exceeding 25 miles/hour, when fugitive dust exceeds 20% opacity or visible plume restriction cannot be controlled, all soil disturbance activities will be terminated.

These measures are anticipated to be adequate to meet all applicable dust control requirements under normal conditions. In the event that high wind or other atypical conditions affect the Site, standby measures described below will be implemented as appropriate.

It will be the responsibility of the DCSC to verify that dust is being appropriately controlled by the on-site consultants/operators for their designated areas of responsibility, as described in Section 9.0.

## **5.2 Standby Control Measures**

If visible dust emissions cross the property line, despite implementation of the specified reasonably available control measures, standby control measures will be implemented as quickly as practicable. Standby control measures can include increased watering, the use of chemical suppressants in accordance with CCDAQEM guidelines, or temporary suspension of site activities on unpaved surfaces. The determination to use standby control measures will be per the discretion of the DCSC and/or lead agencies overseeing the property.

## 6.0 ADDITIONAL IMPLEMENTATION STEPS

This plan will be valid for a period of 2 years from the date of approval by the Trust. NERT (or its designee) shall review the plan once every year to determine whether modifications are required. The plan will be resubmitted bi-annually, at least 60 days prior to the anniversary date.

### 6.1 Dust Control Personnel Training

To ensure that the dust control measures are adhered to, prior to any new ground disturbing activities, the DCSC will conduct Employee and Contractor Awareness Training that will include a review of this Work Plan and applicable fugitive dust control measures, as well as the importance of strict compliance. The DCSC will track participation in training events by having all participants complete a sign-in sheet. Hard hat decals will be provided to all individuals who complete the training. The DCSC will also conduct audits to make sure that appropriate dust control measures are being implemented as outlined in Section 6.2

In addition to the measures outlined above, daily site safety meetings will be used by NERT's consultants and contractors to reinforce the need for all workers to be cognizant of and responsive to conditions or activities that generate visible dust. Workers will be made aware that the area foreman and supervisors must be notified immediately if dust is observed or if conditions exist where dust could become a problem. Workers will be trained to implement the following corrective actions sequence if dust emissions are observed:

1. Reduce the pace of, or cease, the dust producing activity until the problem is corrected.
2. Notify the DCSC of dust conditions and implement dust suppression procedures.
3. Remove accumulated dirt and soil from problematic areas, and/or cover or isolate dust-generating areas.
4. Increase frequency, volume, and/or coverage of water sprays to prevent soil and dirt from drying.
5. Provide additional dust suppression systems and operating personnel during implementation of the selected dust control measures.
6. Modify operating procedures and methods to eliminate problematic conditions.

### 6.2 Dust Control Site Coordinator

NERT is the controlling entity at the site and will designate a DCSC who is tasked with implementing dust control as specified in this Work Plan. The DCSC will have authority and responsibility for overseeing implementation and/or consultant/contractor compliance with measures identified in Section 5. In the event the DCSC is not available to fulfill these duties, a fully trained backup able to serve in a similar capacity will be identified and contact information will be provided to the active contractors on site. The DCSC has the following responsibilities:

- Read and understand this Dust Control Work Plan and have it available at the job site.
- Implement the Work Plan and ensure that all employees, workers, and subcontractors know their dust control responsibilities.
- Implement standby control measures when specified reasonably available controls are ineffective.
- Monitor the worksite for compliance with the Dust Control Work Plan.
- Maintain a self-inspection checklist for monitoring the implementation and effectiveness of the control measures. A self-inspection checklist will be used for each source of fugitive dust emissions to help incorporate routine tasks of fugitive dust control into

daily schedules. The checklist is included in the Appendix. It is anticipated that portions of the Trust property will be observed periodically so that over the course of a month the entire site will have been inspected.

The Trust's contractors will post signage as required by dust permits near active construction areas that provides the name and telephone number of the dust control site inspector or his or her designee so that the public may call to report visible dust emissions beyond the property line. The DCSC will log all such calls and take appropriate action to minimize visible dust emissions, if necessary, and record the resolution or remedial action taken.



## 7.0 ADJACENT PROPERTY DUST CONTROL

In May of 2015 each of the neighboring owners/tenants was contacted to discuss the current dust control plans in place to help identify and minimize the gaps in area control adjacent to the NERT property. The major property holders include Timet and Tronox to the east, Tronox and Lhoist to the south, and Olin and BMI to the west. The northern portion of the NERT property is bordered by Warm Springs Road (Figure 1).

In each case, it was learned there was no formal written work plan prepared by any of the neighboring owners/tenants other than the provisions contained within their air permits as required for the material handling processes. Most entities reported that there were informal institutional controls in place to reduce fugitive emissions. The most frequently reported controls are as follows:

- Vehicular travel routes are covered by concrete or asphalt paving;
- Native soil is protected from crust breaking activities by signage restricting access; and
- Unused areas are covered by gravel mulch.

Currently, Tronox is in the beginning stages of implementing restricted travel paths and placing recycled asphalt in unpaved areas used by security guards during their nightly inspections of the property boundaries. Additionally, all routine sampling conducted on Tronox property by non-Tronox personnel that involves vehicle transit or other dust generating activities will require the submission of a work plan to be approved by Tronox that incorporates pre-wetting and re-crusting of the soil disturbed during sampling activities.

In the event that conditions exist such that dust originates from leasehold or neighboring properties and migrates onto non-leasehold property, the owner/operator of the area of dust origin will be notified by the DCSC. This allows a cooperative effort to identify visible emissions and ensures that control measures will be implemented in a timely fashion. The regulatory threshold is to limit the migration of visible dust emissions to no more than an average of 40% opacity from beyond the property lines onto NERT for periods aggregating more than 3 minutes in any 60-minute period. For ease of implementation, "40 percent opacity" will be interpreted as any visible dust plume in exceedance of the regulatory durations.

The following are points of contact for each neighboring owner/tenant that the DCSC will call in the event that dust plumes in excess of the regulated criteria are observed exiting their property:

Lee Farris	Basic Management Inc.	702.567.0400
Karen Luna	Olin	702.445.4772
Mike Skromyda	Tronox	702.651.2228
John Hefley	Timet	702.275.0540
Terry Thompson	Lhoist	205.704.0627

## **8.0 AREA SPECIFIC REQUIREMENTS FOR DUST CONTROL**

The NERT property is located in an area of the Las Vegas Valley that has been mapped by the CCDAQEM and published in the Construction Activities Dust Control Handbook with moderately low PEP. This is due to the coarse-grained nature of the native soil. However, during interim soil removal actions performed between August 2010 and November 2011, several areas were excavated and graded, and an earthen dam was placed near the eastern end of the Beta Ditch on the NERT property line. As a result, several storm water retention basins were constructed in such a way as to reclassify the Site as a zero storm water discharge property. The Site now accumulates standing water with heavy storm events.

As the retention basins receive storm water, there is an accumulation of fine sand and silt in the upper crust that characteristically develops a moderately high PEP. This becomes evident when the crust is broken and gusting winds are present. Figure 2 shows these areas with moderately high PEP areas based on general site observations conducted in 2015.

The DCSC will conduct inspections of all areas of the NERT property monthly. Areas where there are monitoring wells being sampled will be inspected by the DCSC immediately after sampling, regardless of interval.

Because of the moderately high PEP of the retention basins and associated low lying areas, the DCSC will inspect these areas weekly. Results of these inspections will be documented in a Trust approved format. The DCSC will prepare a summary of the implemented control measures and survey results in the monthly progress site security report provided by Tetra Tech to the Trust.

## **9.0 MANAGEMENT OF SITE AREAS BY CONSULTANT**

As there are multiple consultants working on the NERT property, areas of responsibility have been assigned to provide ongoing monitoring of soil conditions and the potential for dust generation on a routine basis. Each consultant/operator will have primary responsibility for dust control in the area of assigned responsibility as outlined in Section 8. Figure 3 shows the current assigned areas to be managed by the on-site consultants/operator. However, if a consultant/operator is performing a project in another consultant/operator's area of responsibility, dust control responsibility for that project will remain with the consultant/operator performing the work.

During active construction projects which require a dust permit, the contractor that holds the permit will have primary responsibility to meet the regulatory obligations outlined in the permit. However, the DCSC will retain the site wide inspection and reporting responsibility to the Trust as outlined in this Work Plan.

## **10.0 REFERENCES**

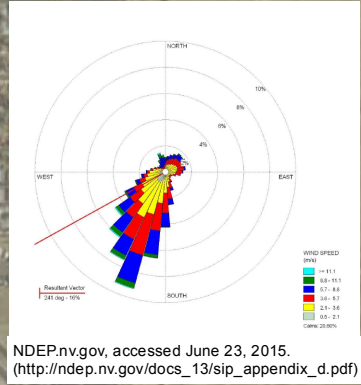
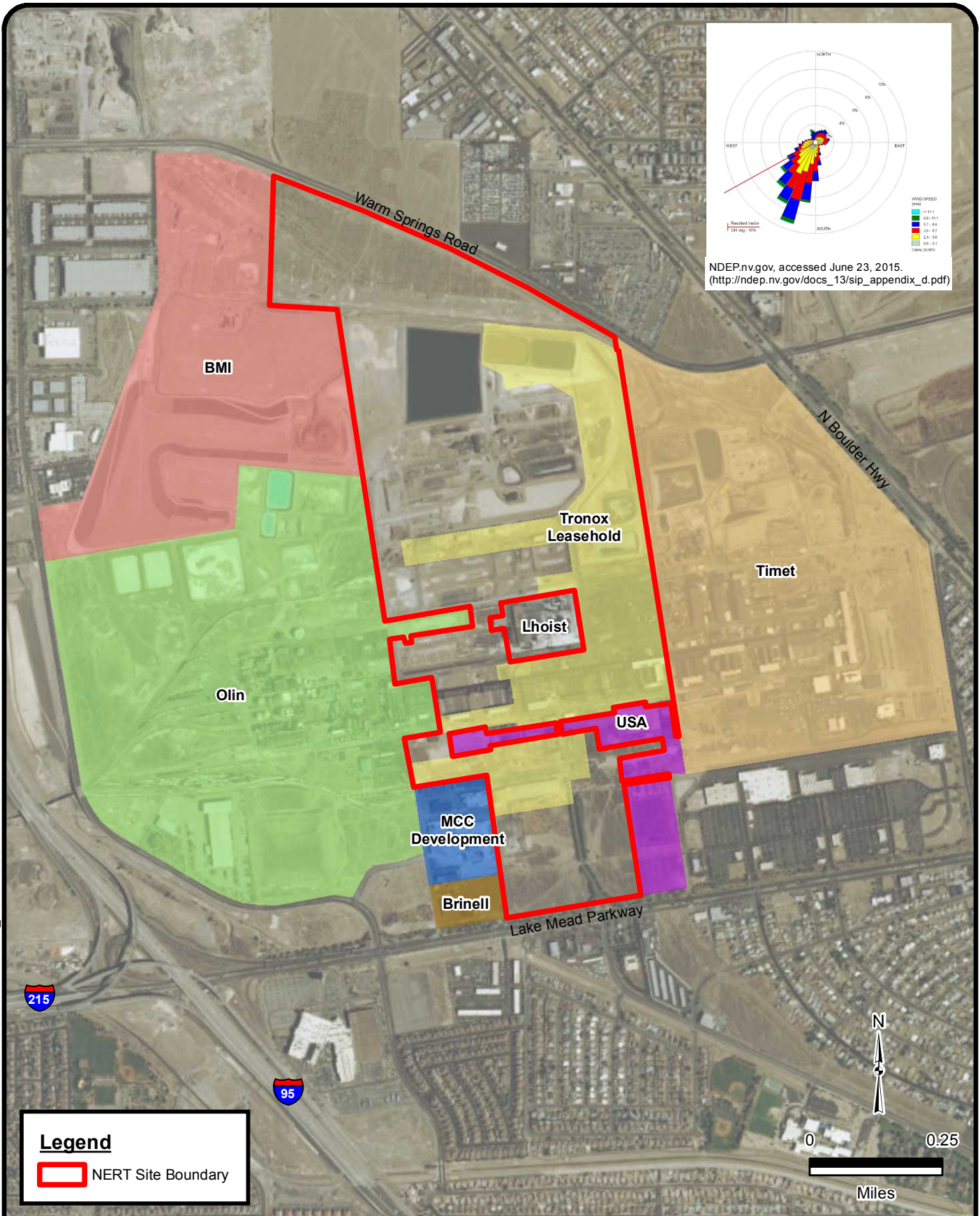
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Weatherspark.com, accessed June 23, 2015.  
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## FIGURES

JUN 10, 2015 U:\BOULDER\NERT\MXD\JUSTMITIGATION\PLAN\JUST01\_SITEMAP.MXD



**Legend**

 NERT Site Boundary

 **TETRA TECH**

www.tetrattech.com

1489 West Warm Springs Road, Suite 110  
 Henderson, Nevada 89014  
 PHONE: (702) 966-8340

NEVADA ENVIRONMENTAL RESPONSE TRUST

SITE WIDE DUST CONTROL PLAN

**SITE LOCATION MAP AND  
 ADJACENT OWNERSHIP**

Project No.: 114-520225

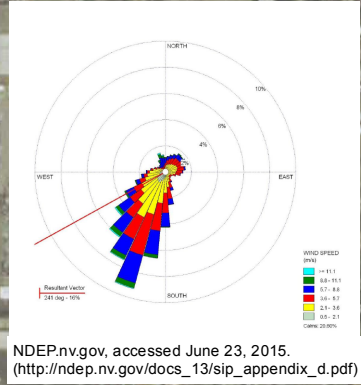
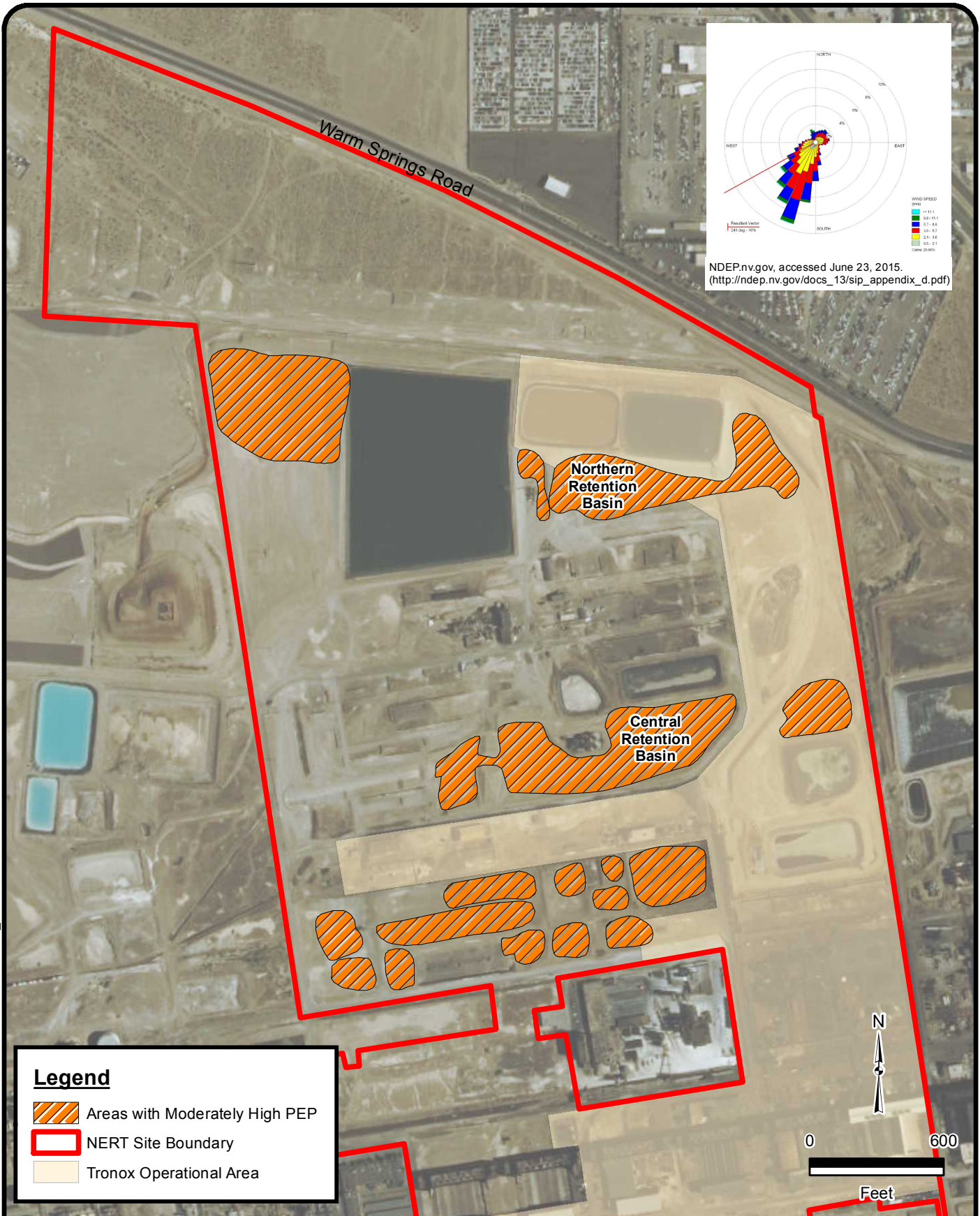
Date: JUN 25, 2015

Designed By: JJA




Figure No.  
**1**



JUL 10, 2015 U:\BOULDER\NERT\WINDMITIGATION\PLAN\IDUST02\_MOD\HIGHPEP.MXD



**Legend**

-  Areas with Moderately High PEP
-  NERT Site Boundary
-  Tronox Operational Area



**TETRA TECH**

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PHONE: (702) 966-8340

NEVADA ENVIRONMENTAL RESPONSE TRUST

SITE WIDE DUST CONTROL PLAN

**AREAS WITH MODERATELY HIGH PARTICULATE EMISSION POTENTIAL (PEP)**

Project No.: 114-520225

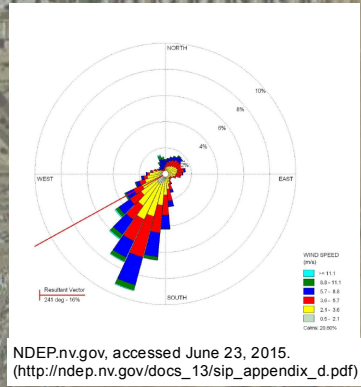
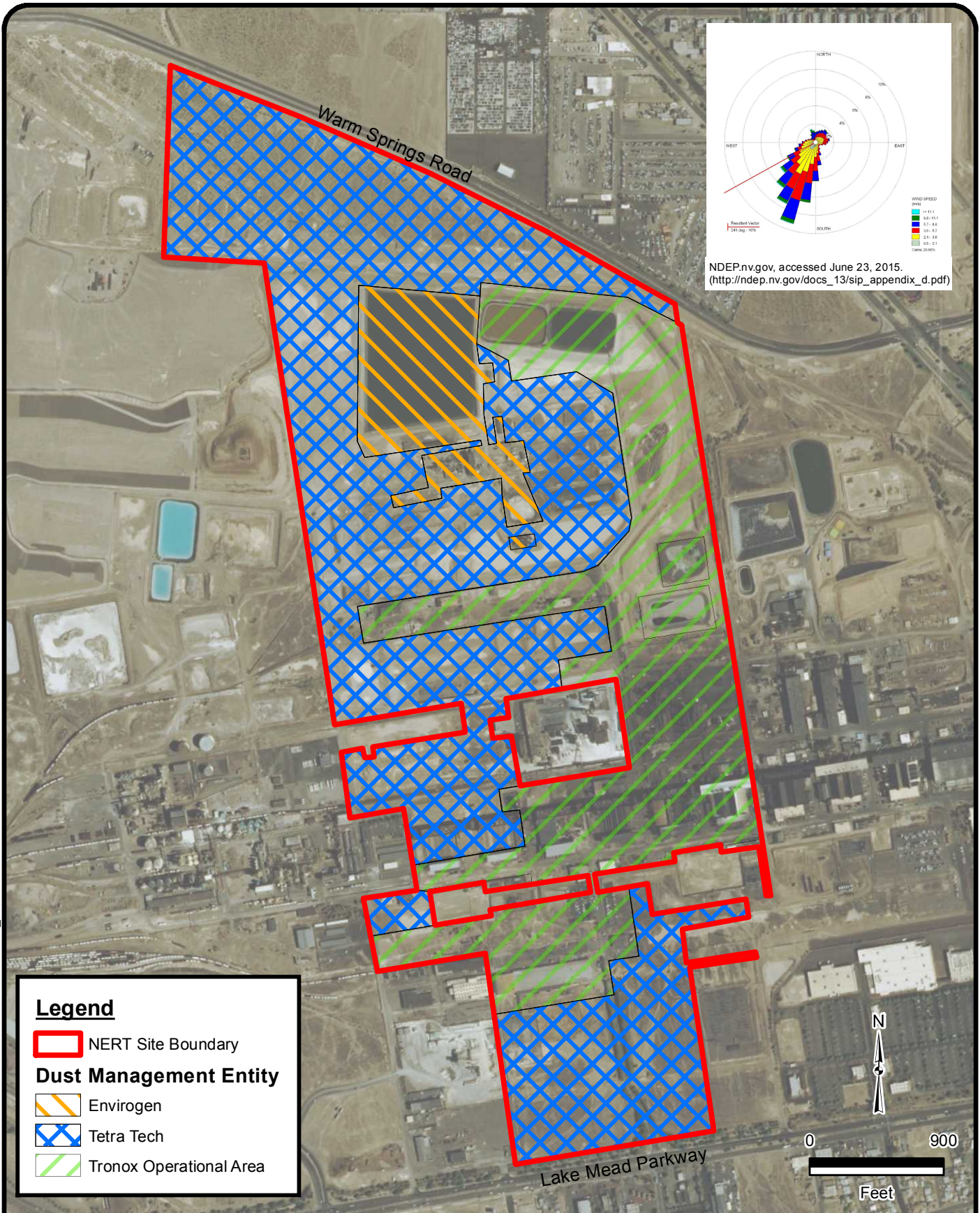
Date: JUL 10, 2015

Designed By: JJA

Figure No. **2**



JUN 10, 2015 U:\BOULDER\NERT\MXD\MITIGATION\PLAN\DUST03\_DUST\MGMTAREAS.MXD



**Legend**

- NERT Site Boundary
- Dust Management Entity**
- Envirogen
- Tetra Tech
- Tronox Operational Area

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NEVADA ENVIRONMENTAL RESPONSE TRUST  
 SITE WIDE DUST CONTROL PLAN  
**DUST MANAGEMENT AREAS**

Project No.: 114-520225  
 Date: JUN 25, 2015  
 Designed By: JJA  
 Figure No.  
**3**



## **APPENDIX A**

## **ATTACHMENT 5**

### **AIR QUALITY REGULATIONS PERTAINING TO DUST CONTROL**

1. Section 90 Fugitive Dust from Open Areas and Vacant Lots
2. Section 91 Fugitive Dust from Unpaved Roads, Unpaved Alleys, and Unpaved Easements Roads
3. Section 92 Fugitive Dust from Unpaved Parking Lots
4. Section 93 Fugitive Dust from Paved Roads and Street Sweeping Equipment
5. Section 94 Permitting and Dust Control for Construction Activities

**CLARK COUNTY**  
**AIR QUALITY REGULATIONS**

**SECTION 90 - FUGITIVE DUST FROM OPEN AREAS AND VACANT LOTS**

**90.1 FUGITIVE DUST From OPEN AREAS AND VACANT LOTS**

**90.1.1 Purpose:** To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR from OPEN AREAS AND VACANT LOTS.

**90.1.2 Applicability:** The provisions of this Regulation shall apply to OPEN AREAS AND VACANT LOTS which are located in the PM<sub>10</sub> NONATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Section 90 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to Normal Farm Cultural Practices or the raising of fowl or animals. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

**90.1.3 Effective Date Of This Regulation:**

**90.1.3.1** Section 90, adopted by the Clark County Board of County Commissioners on June 22, 2000, shall be effective in HYDROGRAPHIC BASIN 212 on January 1, 2001, except as otherwise provided herein.

**90.1.3.2** Section 90 shall be effective in HYDROGRAPHIC BASINS 216 and 217 on April 1, 2002, except as otherwise provided herein.

**90.2 Requirements:**

**90.2.1 OPEN AREAS AND VACANT LOTS:** If OPEN AREAS AND VACANT LOTS are 5,000 square feet or larger and are disturbed by any means, including use by MOTOR VEHICLES and/or OFF-ROAD MOTOR VEHICLES or material dumping, then the OWNER AND/OR OPERATOR of such OPEN AREAS AND VACANT LOTS shall implement one or more of the CONTROL MEASURES described in Subsection 90.2.1.1 of this Regulation within 30 calendar days following the initial discovery of disturbance or vehicle use on OPEN AREAS AND VACANT LOTS. The OWNER AND/OR OPERATOR shall implement all control measures necessary to limit the disturbance of open areas and

vacant lots in accordance with the requirements of this regulation.  
**Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

90.2.1.1 **CONTROL MEASURES:**

- (a) Where there is evidence of soil disturbance by MOTOR VEHICLES and/or OFF-ROAD VEHICLE use, 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 traffic Control Measures. A stable surface area shall be established and maintained by using one of the CONTROL MEASURES set forth in Subsections 90.2.1.1(b) or (c) or by the effective application of water in compliance with the stabilization standards set forth in Subsection 90.2.1.2. Where measures to prevent vehicular trespassing and movement are not effective, the application of water will not be utilized for surface stabilization. For the purposes of this Subsection, use of or parking on OPEN AREAS AND VACANT LOTS for noncommercial and non-institutional purposes by the OWNER AND/OR OPERATOR of such OPEN AREAS AND VACANT LOTS shall not be considered vehicle use under this Subsection. In addition, vehicle use related to landscaping maintenance shall not be considered vehicle use under this Subsection. For the purpose of this Regulation, landscape maintenance does not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes; or
- (b) Where a DISTURBED SURFACE AREA exists (including disturbed surfaces caused by MOTOR VEHICLES), uniformly apply and maintain surface gravel or DUST PALLIATIVES to all areas disturbed by MOTOR VEHICLES in compliance with one of the stabilization standards described in Subsection 90.2.1.2 of this Regulation; or
- (c) Where a DISTURBED SURFACE AREA exists (including disturbed surfaces caused by MOTOR VEHICLES and/or OFF-ROAD MOTOR VEHICLES), apply and maintain an alternative CONTROL MEASURE approved in writing by the CONTROL OFFICER and the Region IX ADMINISTRATOR of the Environmental Protection Agency (EPA).

90.2.1.2 **Stabilization Standards:**

- (a) A visible crust shall be established, as determined by Subsection 90.4.1.1 (The Drop Ball/Steel Ball Test) of these Regulations; or,

- (b) A percent cover that is equal to or greater than 20% for non-erodible elements shall be established, as determined by Subsection 90.4.1.2 (Rock Test Method) of these Regulations; or,
- (c) A threshold friction velocity, corrected for non-erodible elements of 100 cm/second or higher, shall be established, as determined by Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation; or,
- (d) An alternative test method approved in writing by the CONTROL OFFICER and the Region IX ADMINISTRATOR of the EPA.

90.2.2 **Dust Mitigation Plans Required:** Any OWNER AND/OR OPERATOR of OPEN AREAS AND VACANT LOTS having a cumulative area of 10,000 acres or greater must submit a dust mitigation plan to the Department of Air Quality and Environmental Management for approval by March 31, 2003, in a format prescribed by the CONTROL OFFICER.

90.2.3 **Mechanized Weed Abatement and/or Trash Removal:** If machinery is used to clear weeds and/or trash from OPEN AREAS AND VACANT LOTS of 5,000 square feet or larger, then the following Control Measures set forth in Subsection 90.2.3.1 shall be applied. **Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

90.2.3.1 **CONTROL MEASURES**

- (a) Pre-wet surface soils before mechanized weed abatement and/or trash removal occurs; and,
- (b) Maintain dust control measures while mechanized weed abatement and/or trash removal is occurring; and,
- (c) PAVE, apply gravel, apply water, or apply a suitable DUST PALLIATIVE, in compliance with the stabilization standards set forth in Subsection 90.2.1.2 of this Regulation, after mechanized weed abatement and/or trash removal occurs.

90.3 **Record Keeping Requirements**

90.3.1 **Record Keeping:** Any PERSON subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours of a written request.

90.3.2 **Record Retention:** Copies of the records required by Subsection 90.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

90.4 **Test Methods**

90.4.1 **Stabilization Standards For OPEN AREAS AND VACANT LOTS:** The test methods described in Subsections 90.4.1.1 through Subsections 90.4.1.3 of this Regulation 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, or other characteristics which are visibly distinguishable, each representative surface must be tested separately for stability in an area that represents a random portion of the overall disturbed conditions of the site, utilizing the appropriate test methods in Subsections 90.4.1.1 through Subsections 90.4.1.3 of this Regulation. Depending upon test method results, include or eliminate each representative surface from the total size assessment of the DISTURBED SURFACE AREA(S).

90.4.1.1 **Soil Crust Determination (The Drop Ball Test):** 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 the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the soil crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of an OPEN AREA or VACANT LOT which have not originated from the representative OPEN AREA or VACANT LOT surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation to the loose material to determine whether the surface is stabilized.

- (a) A sufficient crust is defined under the following conditions: once a ball has been dropped according to Subsection 90.4.1.1 of this Regulation, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removal of the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.
- (b) Randomly select each representative DISTURBED SURFACE for the drop ball test by using a blind "over the shoulder" toss of a throwable object (for example, a metal weight with survey tape attached). Using the point of fall as the lower left hand corner, measure a 1-foot square area. Drop the ball three times within the 1-foot by 1-foot square survey area, using a consistent pattern

across the survey area. The survey area shall be considered to have passed the Soil Crust Determination Test if at least two of the three times the ball was dropped, the results met the criteria in Subsection 90.4.1.1(a) of this Regulation. 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 90.4.1.1(a) of this Regulation for all of the survey areas tested, then the site shall be considered to have passed the Soil Crust Determination Test and shall be considered sufficiently crusted.

- (c) 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 soil crust test as often as necessary on each portion of the overall conditions of the site using the random selection method set forth in Subsection 90.4.1.1(b) of this Regulation for an accurate assessment.

90.4.1.2 **Rock Test Method:** The Rock Test Method, which is similar to Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation, 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."

- (a) Randomly select a 1 meter by 1 meter survey area within an 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). Use a blind "over the shoulder" toss of a throwable object (for example, a metal weight with survey tape attached) to select the survey surface and using the point of fall as the lower left hand corner, measure a 1 meter by 1 meter survey 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.
- (b) Without moving any of the rocks or other elements, examine the survey area. Since rocks greater than 3/8 inch (1 cm) in diameter

are of interest, measure the diameter of some of the smaller rocks to get a sense of which rocks need to be considered.

- (c) Mentally group the rocks greater than 3/8 inch (1cm) diameter lying in the survey area into small, medium, and large size categories. 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.
- (d) 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.
- (e) 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.
- (f) Divide the total rock area, calculated in Subsection 90.4.1.2(e) of this Regulation, 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).
- (g) Select and mark-off two additional survey areas and repeat the procedures described in Subsection 90.4.1.2(a) through Subsection 90.4.1.2(f) of this Regulation. 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.
- (h) If the average rock cover is greater than or equal to 20%, the surface is stable. If the average rock cover is less than 20%, follow the procedures in Subsection 90.4.1.2(i) of this Regulation.
- (i) If the average rock cover is less than 20%, the surface may or may not be stable. Follow the procedures in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation



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 Threshold Friction Velocity (TFV) to be stable without accounting for rock cover.

- (j) After completing the procedures described in Subsection 90.4.1.2(i) of this Regulation, use Table 2 of this Regulation 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.

**90.4.1.3 Determination Of Threshold Friction Velocity (TFV):** For DISTURBED SURFACE AREAS that are not crusted or vegetated, determine TFV according to the following sieving field procedure (based on a 1952 laboratory procedure published by W. S. Chepil).

- (a) 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 Subsection, 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

- (b) 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 Subsection 90.4.1.2 (Rock Test Method) of this Regulation. 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:

- Eq. 1: (Average length) x (Average width) = Average Dimensions.  
 Eq. 2: (Average Dimensions) x (Number of Elements) = Overhead Area.  
 Eq. 3: Overhead Area Of Group 1 + Overhead Area Of Group 2 (etc.) = Total Overhead Area.  
 Eq. 4: Total Overhead Area/2 = Total Frontal Area.  
 Eq. 5: (Total Frontal Area/Survey Area) x 100 = Percent Cover Of Non-Erodible Elements.

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 Subsection 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

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 History: Initial adoption: June 22, 2000  
 Amended: November 16, 2000; November 20, 2001; December 17, 2002; June 3, 2003; July 1, 2004.

## CLARK COUNTY

### AIR QUALITY REGULATIONS

#### SECTION 91 - FUGITIVE DUST FROM UNPAVED ROADS, UNPAVED ALLEYS, AND UNPAVED EASEMENT ROADS

##### 91.1 FUGITIVE DUST From Unpaved Roads, Unpaved Alleys, and Unpaved EASEMENT Roads

91.1.1 **Purpose:** To limit the Emission of PARTICULATE MATTER into the AMBIENT AIR from unpaved roads, unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads.

91.1.2 **Applicability:** The provisions of this Regulation shall apply to unpaved roads, which includes unpaved alleys, unpaved ROAD EASEMENTS and unpaved access roads for utilities and railroads which are located in the PM<sub>10</sub> NON-ATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Subsections 91.1 through 91.3 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to non-commercial and non-institutional private driveways and shall not apply to horse trails, hiking paths, bicycle paths, or other similar paths that have been officially designated by a governing body for exclusive use for purposes other than travel by motor vehicles. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

##### 91.1.3 **Effective Date Of This Regulation:**

91.1.3.1 Regulations 91.1 through 91.3 shall be effective in HYDROGRAPHIC BASIN 212 on their adoption by the District Board of Health of Clark County on June 22, 2000.

91.1.3.2 Regulations 91.1 through 91.3 shall be effective in HYDROGRAPHIC BASINS 216 and 217 on April 1, 2002.

##### 91.2 **Requirements:**

91.2.1 **Unpaved Roads:** An OWNER AND/OR OPERATOR of an unpaved road in the PM<sub>10</sub> NON-ATTAINMENT AREA, shall implement one of the CONTROL MEASURES

set forth in Subsection 91.2.1.3 of this Regulation, except as set forth in Subsection 91.2.1.1 of this Regulation. For the purpose of this Regulation, the CONTROL MEASURES shall be considered effectively implemented when the unpaved roadway complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. **Advisory Notice:** In order to conserve water to the greatest extent practicable, the use of RECLAIMED WATER is highly encouraged.

**91.2.1.1 Implementation Of CONTROL MEASURES For Existing Unpaved Roads:**

91.2.1.1.1 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to June 22, 2000 in HYDROGRAPHIC BASIN 212 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

- (a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2001.
- 91 CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2002.
- (c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by June 1, 2003.
- (d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after June 1, 2003. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).
- (e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this

Subsection (91.2.1.1 (e)) shall not constitute applicable State Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL MEASURES shall be considered effectively implemented when the unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.1.2 OWNERS AND/OR OPERATORS of existing unpaved roads that were constructed prior to April 1, 2002 in HYDROGRAPHIC BASINS 216 and 217 shall implement one of the CONTROL MEASURES set forth Subsection 91.2.1.3 of this Regulation according to the following schedule:

- (a) CONTROL MEASURES shall be implemented for one third (1/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2003.
- (b) CONTROL MEASURES shall be implemented for two thirds (2/3) of the total miles of unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2004.
- (c) CONTROL MEASURES shall be implemented for all unpaved roads having vehicular traffic of 150 vehicles or more per day in accordance with Subsection 91.2.1.3 (CONTROL MEASURES) of this Regulation by April 1, 2005.
- (d) CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads on which vehicular traffic is equal to or greater than 150 vehicles per day that develops after April 1, 2005. CONTROL MEASURES shall be implemented within 365 calendar days following the initial discovery that vehicular traffic equals or exceeds 150 vehicles per day and that the road surface does not comply with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1(d).
- (e) Non-federal Requirement: CONTROL MEASURES set forth in Subsection 91.2.1.3 shall be implemented for existing unpaved roads having vehicular traffic of less than 150 vehicles per day within 365 calendar days following the initial discovery that the road surface does not comply with the stabilization standards set forth in Section 91.2.1.4 of this Regulation. The requirements of this Subsection (91.2.1.1 (e)) shall not constitute applicable State

Implementation Plan requirements pursuant to Section 189 of the federal Clean Air Act. The CONTROL OFFICER may require short-term stabilization of any unpaved road subject to Subsection 91.2.1.1 (e)). For the purpose of this Subsection, the CONTROL MEASURES shall be considered effectively implemented when the unpaved road complies with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation.

91.2.1.2 No unpaved roads or alleys may be constructed in public thoroughfares in HYDROGRAPHIC BASIN 212 after June 22, 2000, or in HYDROGRAPHIC BASINS 216 and 217 after April 1, 2002, unless the unpaved road is an interim component of an active paving project.

91.2.1.3 **CONTROL MEASURES:**

- (a) PAVE, or
- (b) Apply DUST PALLIATIVES, in compliance with the stabilization standards set forth in Subsection 91.2.1.4 of this Regulation, or
- (c) Apply and maintain an alternative CONTROL MEASURE approved in writing by the CONTROL OFFICER and the Region IX Administrator of the EPA.

91.2.1.4 **Stabilization Standards:** For the purpose of this rule, CONTROL MEASURES shall be considered effectively implemented when stabilization observations for FUGITIVE Dust EMISSIONS from unpaved roads and unpaved alleys do not exceed 20% OPACITY and do not equal or exceed 0.33 oz/ft<sup>2</sup> silt loading, or do not exceed 6% silt content, as determined by Subsection 91.4.1 of these Regulations.

91.3 **Record Keeping Requirements**

91.3.1 **Record Keeping:** Any person subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours from written or verbal request.

91.3.2 **Records Retention:** Copies of the records required by Subsection 91.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

91.3.3 **Reports Required:** In addition to complying with the record keeping requirements specified in Subsection 91.3.1, OWNERS of unpaved roads shall be subject to the requirements set forth in Subsection 91.2.1.1, and

shall prepare and submit a written report to the CONTROL OFFICER documenting compliance with the provisions of Subsection 91.2.1.1. This report shall be prepared for the years 2001, 2002, and 2003 for OWNERS of unpaved roads in HYDROGRAPHIC BASIN 212, for the years 2003, 2004, and 2005 for OWNERS of unpaved roads in HYDROGRAPHIC BASINS 216 and 217, and shall be submitted to the CONTROL OFFICER no later than October first of each year and shall include:

- 91.3.3.1 The total miles of unpaved roads under the jurisdiction of the OWNER and the miles PAVED during the reporting period subject to the requirements of Subsection 91.2.1.1. Miles of PAVING for roads subject to Subsections 91.2.1.1.1(a), 91.2.1.1.1(b), and 91.2.1.1.1(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.1 (d). Miles of PAVING for roads subject to Subsections 91.2.1.1.2(a), 91.2.1.1.2(b), and 91.2.1.1.2(c) must be listed separately from paving of roads found to be subject Subsection 91.2.1.1.2(d).

91.4 **Test Methods**

91.4.1 **Stabilization Test Methods For Unpaved Roads And Unpaved Alleys:**

91.4.1.1 **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, unpaved alleys, and unpaved EASEMENTS. This method can only be conducted by an individual who has received certification as a qualified Visible EMISSIONS Evaluator.

- (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-degree 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 form 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 91.4.1.1(c) of this Regulation) and Step 4 (Subsection 91.4.1.1 (d) of this Regulation) 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 Section 91 of these Regulations.

91.4.1.2 **Silt Content Test Method:** The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads, unpaved alleys, and unpaved EASEMENTS. The higher the silt content, the greater the amount of fine dust particles that are entrained into the atmosphere when cars and trucks drive on unpaved roads, unpaved alleys, and unpaved EASEMENTS.

- (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, a lid, and collector pan
  - (2) A small whiskbroom or paintbrush with stiff bristles and dustpan 1 foot 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 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 greater than 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 91.4.1.2(c) of this Regulation) 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/ft<sup>2</sup>, the surface is stable. If the average silt loading is greater than or equal to 0.33 oz/ft<sup>2</sup>, then proceed to examine the average percent silt content. If the source is an unpaved road, unpaved alley, or unpaved EASEMENT and the average percent silt content is 6% 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, alley, or EASEMENT), it is recommended that you collect 3 additional samples from the source according to Step 1 (Subsection 91.4.1.2(b) of this Regulation) 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 91.4.1.2(b) of this Regulation), 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 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

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**SECTION 92: FUGITIVE DUST FROM UNPAVED PARKING LOTS AND STORAGE AREAS**

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## **92.1 Fugitive Dust from Unpaved Parking Lots and Storage Areas**

### **92.1.1 Purpose**

The purpose of this section is to limit the emission of particulate matter into the ambient air from unpaved parking lots, including storage areas as defined in Section 0.

### **92.1.2 Applicability**

The provisions of this regulation shall apply to unpaved parking lots and storage areas which are located in the PM<sub>10</sub> nonattainment area (Hydrographic Basin 212) or in the Apex Valley (Hydrographic Basins 216 and 217), and which are not regulated by Section 94. Unpaved parking lots and storage areas include automobile impound yards, wrecking yards, automobile dismantling yards, salvage yards, material handling yards, equestrian staging facilities, and storage yards. For the purposes of this regulation, maneuvering shall not include military maneuvers or exercises conducted on federal facilities. Nothing in Sections 92.1 through 92.6 shall be construed to prevent enforcement of Section 40 ("Prohibition of Nuisance Conditions"). The provisions of this regulation shall not apply to stationary sources as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

## **92.2 Definitions**

- (a) The following term has the meanings set forth below for the purposes of Section 92. Any term not defined in these paragraphs shall have the meaning given in Section 0 or the Clean Air Act.
- (b) "Equestrian staging area" means the area(s) used exclusively to load, unload, and saddle horses; organize riders before a ride; and park vehicles used to transport horses.

## **92.3 Requirements**

- 92.3.1** The owner and/or operator of an existing unpaved parking lot or storage area in Hydrographic Basins 212, 216, or 217 shall implement one or more of the control measures described in Section 92.3.1.2 as necessary to comply with the stabilization standards of Section 92.4.1. For unpaved parking lots and storage areas that are utilized intermittently, for a period of 35 days or less during the calendar year, the owner and/or operator shall implement one or more of the control measures described in Section 92.3.1.2 during the period that the unpaved parking lot or storage area is utilized for vehicle parking or storage. For the purpose of this regulation, the control measures set forth in Section 92.3.1.2 shall be considered

effectively implemented when the unpaved parking lot or storage area meets the stabilization standards described in Section 92.4.1.

#### **92.3.1.1 New Unpaved Parking Lots or Storage Areas**

No unpaved parking lots or storage areas may be constructed in Hydrographic Basins 212, 216, or 217 as of January 1, 2003 except as provided in this section.

- (a) **Exemptions.** The requirements of this Section shall not be applicable to parking lots for rural public facilities, such as trailheads, campgrounds, and similar facilities where paved parking lots would conflict with the rural nature of these facilities, provided such unpaved parking lot is stabilized in accordance with Sections 92.3.1.2(b) through (d) prior to being used. For the purposes of this Section, a rural public facility shall not include any facility located within the BLM Disposal Boundary.
- (b) **Material Storage and Handling Areas.** If an area is used for storing and handling of landscaping, aggregate, and other similar bulk materials, the owner and/or operator shall implement one or more of the control measures described in Section 92.3.1.2, subject to the approval of the Control Officer, provided, however, that all access, parking, and loading areas used by on-road vehicles shall be paved.
- (c) **Tracked, Non-Rubber Tired Vehicle, or Heavy Equipment Storage Areas.** If an area is used primarily for storage of non-rubber tired vehicles or equipment that the control officer has determined to be of such weight as to damage or destroy pavement (e.g., heavy equipment), the owner and/or operator shall implement one or more of the control measures described in Section 92.3.1.2, subject to the approval of the Control Officer, provided, however, that all access, parking, and loading areas primarily used by rubber-tired vehicles shall be paved.
- (d) **Equestrian Staging Areas:** Areas designed and used exclusively for the loading, unloading, and saddling of horses for equestrian activities shall be exempt from the paving requirements of this section if control measures applied to the designated areas meet the performance standards of Section 92.4. Posted vehicle speed limits for vehicles using such designated areas shall not exceed 10 miles per hour.

#### **92.3.1.2 Control Measures**

- (e) Pave;

- (f) Apply dust palliatives, in compliance with the stabilization standards set forth in Section 92.4.1;
- (g) Apply dust palliatives to vehicle travel lanes within the parking lot or storage area in compliance with the stabilization standards set forth in Section 92.4.1, and uniformly apply and maintain surface gravel or recycled asphalt to a depth of two inches on the vehicle parking areas;
- (h) Apply and maintain an alternative control measure approved in writing by the Control Officer and the EPA Region 9 Administrator.

## **92.4 Performance Standards**

### **92.4.1 Stabilization Standards**

For the purpose of this regulation, control measures shall be considered effectively implemented when stabilization observations for fugitive dust emissions from unpaved parking lots or storage areas do not exceed 20 percent opacity and do not equal or exceed 0.33 oz/ft<sup>2</sup> silt loading, or do not exceed 8 percent silt content, as determined by Section 92.6 ("Test Methods"), except in areas on which gravel has been applied under the provisions of Section 92.3.1.2(c).

### **92.4.2 Prohibition of Dust Over Property Line**

Where Best Available Control Measures provided for in this regulation have not been applied, no owner and/or operator of an unpaved parking lot or storage area shall permit a dust plume from that unpaved parking lot or storage area to cross a property line.

## **92.5 Recordkeeping Requirements**

### **92.5.1 Recordkeeping**

Any person subject to the requirements of this regulation shall compile and retain records that provide evidence of control measure application, by indicating type of treatment or control measure, extent of coverage, and date applied. The records and supporting documentation shall be made available to the Control Officer within 24 hours of a written request.

### **92.5.2 Records Retention**

Copies of the records required by Section 92.5.1 shall be retained for at least one year. Facilities subject to Section 12.5 ("Part 70 Operating Permit Requirements") shall maintain records in accordance with Part 70 record keeping requirements.



## **92.6 Test Methods**

### **92.6.1 Stabilization Test Methods for Unpaved Parking Lots and Storage Areas**

#### **92.6.1.1 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 parking lots and storage areas. This method can only be conducted by an individual who has received certification as a qualified Visible Emissions Evaluator.

- (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-degree 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), evaluator'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), and color of the plume and type of background on the visible emission observation form when opacity readings are both 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 percent on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a five-

second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles that 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 Steps 3 and 4 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 4one 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 percent or lower, the source is in compliance with the opacity standard described in this regulation.

#### **92.6.1.2 Silt Content Test Method**

The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved parking lots and storage areas. The higher the silt content, the greater the amount of fine dust particles that are entrained into the atmosphere when cars and trucks drive on unpaved parking lots or storage areas.

- (a) Equipment:
  - (1) Set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm; a lid; and collector pan;
  - (2) Small whiskbroom or paintbrush with stiff bristles and dustpan one foot in width (the broom/brush should preferably have one, thin row of bristles no longer than 1.5 inches in length);
  - (3) Spatula without holes;
  - (4) Small scale with half-ounce increments (e.g., postal/package scale);
  - (5) Shallow, lightweight container (e.g., plastic storage container);
  - (6) Sturdy cardboard box or other rigid object with a level surface;

- (7) Basic calculator;
  - (8) Cloth gloves (optional for handling metal sieves on hot, sunny days);
  - (9) Sealable plastic bags (if sending samples to a laboratory);  
and
  - (10) 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 greater than 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.
- (1) At this point, the sample can be 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 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, restack 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 or storage area, 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 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 three samples collected, average your results together.
- (j) Step 9: Examine the results. If the average silt loading is less than  $0.33 \text{ oz/ft}^2$ , the surface is stable. If the average silt loading is greater than or equal to  $0.33 \text{ oz/ft}^2$ , then examine the average percent silt content. If the source is an unpaved parking lot or storage area and the average percent silt content is 8 percent or less, the surface is stable. If your field test results are within 2 percent of the standard (for example, 6-10 percent silt content on an unpaved parking lot or storage area), it is recommended that you collect three additional samples from the source according to Step 1 and take them to an independent laboratory for silt content analysis.

- (k) You may choose to collect three samples from the source, according to Step 1, 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 described in Volume 1, Appendix C.2.3 ("Silt Analysis") of EPA's *Procedures For Laboratory Analysis of Surface/Bulk Loading Samples* (1995, fifth edition).

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## CLARK COUNTY

### AIR QUALITY REGULATIONS

#### SECTION 93 - FUGITIVE DUST FROM PAVED ROADS AND STREET SWEEPING EQUIPMENT

##### 93.1 FUGITIVE DUST From PAVED Roads and Street Sweeping Equipment

93.1.1 **Purpose:** To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR from PAVED roads and PAVED alleys.

93.1.2 **Applicability:** The provisions of this Regulation shall apply to PAVED roads and PAVED alleys which are located in the PM<sub>10</sub> NONATTAINMENT AREA (HYDROGRAPHIC BASIN 212) and the Apex Valley (HYDROGRAPHIC BASINS 216 and 217). Nothing in Subsections 93.1 through 93.4 of these Regulations shall be construed to prevent enforcement of Section 40 (Prohibition of NUISANCE Conditions) of these Regulations. The provisions of this Regulation shall not apply to non-commercial and non-institutional private driveways. The provisions of this Regulation shall not apply to STATIONARY SOURCES as defined in Section 0, except that these control measures shall be considered as part of a BACT determination.

##### 93.2 Requirements:

93.2.1 **PAVED Road Development Standards:** OWNERS AND/OR OPERATORS having jurisdiction over, or ownership of, public or private PAVED roads shall construct, or require to be constructed, all new or modified PAVED roads in conformance with the road shoulder width and drivable median stabilization requirements as specified below:

93.2.1.1 New CONSTRUCTION, MODIFICATION, or approvals of PAVED roads shall be constructed with a PAVED travel section, and four (4) feet of PAVED or stabilized shoulder on each side of the PAVED travel section. The four (4) feet of shoulder shall be PAVED or stabilized with a dust palliative or gravel to prevent the trackout of mud and dirt to the PAVED section. Where shoulder stabilization is used in place of PAVING, the stabilized shoulders must be maintained in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation.

- 93.2.1.2 New CONSTRUCTION, MODIFICATION, or approvals of PAVED roads on which vehicular traffic is greater than or equal to 3,000 vehicles per day after March 1, 2003 shall be constructed with a PAVED travel section, and eight (8) feet of stabilized shoulder adjacent to the PAVED travel section where right-of-way is available for the stabilized shoulder. Where the right-of-way is not available for the full eight (8) feet of stabilized shoulder, curbing shall be installed adjacent to the shoulder. Stabilized shoulders must be maintained in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this regulation.
- 93.2.1.3 Where curbing is constructed adjacent to and contiguous with the travel lane or PAVED shoulder of a road, the shoulder width design standards specified in Subsection 93.2.1.1 shall not be applicable.
- 93.2.1.4 Where PAVED roads are constructed, or modified with shoulders and/or medians, the shoulders and/or medians shall be constructed as set forth below. If the shoulder, median, or extended right-of-way is located in a limited access freeway right-of-way, then the requirements of Section 90 apply.
- (a) With curbing, or
  - (b) With solid PAVING across the median, or
  - (c) Apply DUST PALLIATIVES, in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation, or
  - (d) Apply two (2) inches of gravel in compliance with the stabilization standards set forth in Subsection 93.2.1.5 of this Regulation, or
  - (e) With materials that prevent the trackout of mud and dirt to the PAVED section such as landscaping or decorative rock.
- 93.2.1.5 Stabilization Standards: For the purpose of this regulation, the unpaved shoulders and medians of PAVED roads shall be considered to have CONTROL MEASURES effectively implemented when FUGITIVE DUST EMISSIONS do not exceed 20% OPACITY and silt loading does not equal or exceed 0.33 oz/ft<sup>2</sup> silt loading, as determined by Subsection 93.4.1 (Test Methods-Stabilized PAVED Road Shoulders and Medians) of these regulations, except for unpaved shoulders on which gravel has been applied under the provisions of Subsection 93.2.1.1. Failure to comply with either the 20% OPACITY limit or silt loading limit indicates that the shoulder is not stable. Where gravel is utilized to prevent trackout from unpaved shoulders and medians of PAVED roads, surface gravel shall be

uniformly applied and maintained to a depth of two (2) inches to comply with the 20% OPACITY standards set forth in Subsection 93.4.1.1 of these Regulations and the Gravel Depth And Silt Content Test Method set forth in Subsection 93.4.1.3 of these Regulations. For the purposes of this section, the term Gravel shall include "aggregate" and shall mean unconsolidated material greater than 0.25 (1/4) inch but less than three (3) inches, and contain no more than six (6) percent silt, by dry weight, that will pass through a No. 200 sieve. Failure to comply with either the 20% OPACITY limit or the Gravel Depth And Silt Content Test Method indicates that the shoulder is not stable.

- 93.2.1.6 Requirements For Existing Nonconforming PAVED Roads: OWNERS AND/OR OPERATORS having jurisdiction over, or ownership of, existing public or private PAVED roads which do not conform with the requirements of Subsections 93.2.1.1 through 93.2.1.5 of this Regulation, shall reconstruct, or require to be reconstructed, the existing nonconforming PAVED road within 365 calendar days following the initial discovery that the road fails to meet the requirements set forth in Subsections 93.2.1.1 through 93.2.1.5 of these Regulations. The CONTROL OFFICER may require short-term stabilization of any PAVED road subject to the requirements set forth in Subsections 93.2.1.1 through 93.2.1. of these Regulations. Other stabilization methods of equal or greater effectiveness may be implemented with the written approval of the CONTROL OFFICER, providing emissions do not exceed 20% opacity, unless the US EPA Region 9 objects to such approval within ninety (90) days from the date notification of the proposed alternative stabilization method is sent to the US EPA Region 9 by the CONTROL OFFICER. If the US EPA Region 9 does not object within the ninety (90) days from the date notification, the proposed alternative stabilization method may be implemented. If the US EPA Region 9 objects to the proposed alternative stabilization method, the proposed alternative stabilization method shall require written approval from both the CONTROL OFFICER and the US EPA Region 9 prior to the implementation of the proposed alternative stabilization method.
- 93.2.2 **Street Sweeper Requirements:** After January 1, 2001, any OWNER AND/OR OPERATOR which utilizes street sweeping equipment or street sweeping services for street sweeping on PAVED roads or PAVED parking lots, shall acquire or contract to acquire only certified PM<sub>10</sub>-efficient street sweeping equipment.
- 93.2.2.1 PM<sub>10</sub>-Efficient Street Sweepers: For the purposes of Subsection 93.2.2 of this Regulation, a PM<sub>10</sub>-efficient street sweeper is a street sweeper which has been certified by the South Coast Air Quality Management District (California) (SCAQMD) to comply with the District's performance



standards set forth in SCAQMD Rule 1186 utilizing the test methods set forth in SCAQMD Rule 1186, Appendix A.

- 93.2.3 **Equipment Restriction:** 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 not greater than 20% opacity when measured as set forth in Subsection 93.4.1.1. The use of dry rotary brushes or blower devices without the use of water is expressly prohibited.
- 93.2.4 **Crack Seal Equipment Requirements:** After December 31, 2005 any OWNER AND/OR OPERATOR which utilizes crack seal cleaning equipment shall acquire, or contract to acquire, only vacuum type crack cleaning seal equipment.
- 93.3 **Record Keeping And Reporting Requirements**
- 93.3.1 **Record Keeping:** Any PERSON subject to the requirements of this Regulation shall compile and retain records that provide evidence of CONTROL MEASURE application, by indicating type of treatment or CONTROL MEASURE, extent of coverage, and date applied. The records and supporting documentation shall be made available to the CONTROL OFFICER within 24 hours of a written request.
- 93.3.2 **Reporting Requirements:** OWNERS AND/OR OPERATORS having jurisdiction over PAVED roads shall prepare and submit a written report to the Clark County Department of Air Quality and Environmental Management documenting compliance with the provisions of this Regulation. This report shall be prepared annually on a calendar year basis. The reports shall be transmitted no later than 90 days after the end of the calendar year and shall include:
- 93.3.2.1 The total miles of PAVED roads under the jurisdiction of the OWNER AND/OR OPERATOR and the miles of PAVED roads constructed or modified during the reporting period.
- 93.3.2.2 For newly constructed or modified roads, documentation on how the requirements of Subsections 93.2.1.1 through 93.2.1.5 have been met.
- 93.3.2.3 Other information which may be needed by the CONTROL OFFICER for compliance with EPA requirements for enforcement of this regulation.
- 93.3.3 **Records Retention:** Copies of the records required by Subsection 93.3.1 (Record Keeping Requirements) of this Regulation shall be retained for at least one year.

93.4 **Test Methods**

93.4.1 **Stabilization Test Methods For UNPAVED Shoulders And Medians of PAVED Roads:**

93.4.1.1 **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 road shoulders and medians of PAVED roads. This method can only be conducted by an individual who has received certification as a qualified observer.

- (a) Step 1: Stand at least 20 feet from the FUGITIVE DUST source in order to provide a clear view of the EMISSIONS with the sun oriented in the 140-degree 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 form 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 3 feet 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 93.4.1.1 (c) of this Regulation) and Step 4 (Subsection 93.4.1.1 (d) of this Regulation) 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 Section 93 of these Regulations.

93.4.1.2 Silt Loading Test Method: The purpose of this test method is to estimate the silt loading of the representative surfaces of dust palliative and untreated shoulders and medians of PAVED roads. The higher the silt loading, the greater the amount of fine dust particles that are entrained into the atmosphere when vehicles drive on unpaved shoulders and medians of PAVED roads.

- (a) Equipment:
  - (1) A set of sieves with the following openings: 4 millimeters (ASTM No. 5), 2 millimeters, (ASTM No. 10), 1 millimeter (ASTM No. 18), 0.5 millimeter (ASTM No. 35) and 0.25 millimeter (ASTM No. 60), (or a set of standard/commonly available sieves), a lid, and collector pan.
  - (2) Equipment necessary to collect a sample of material from the surface of the subject area. (e.g., a small whisk broom or paintbrush with bristles no longer than 1.5 inches, dustpan, spatula, shallow container, sealable plastic bags.)

- (3) Equipment necessary to complete field analysis of material. (e.g., weighting scale with half ounce increments, calculator, writing material.)
- (b) Step 1: Look for a representative surface within four (4) feet of the edge of the pavement. [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.] Gently press the edge of a dustpan into the surface 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 or similar device to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch in the 1 square foot area. If you reach a hard, underlying subsurface that is less than 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 3/8 inch. In order to confirm that samples are collected to 3/8 inch 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 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 return to the DAQM facilities to complete the remaining steps or take it to an independent laboratory for silt loading 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.
- (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 or place on a powered shaker 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 calibrated on the scale in Step 2 (Subsection 93.4.1.2(c)). 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: Multiply the resulting weight by 0.38. The resulting number is the estimated silt loading.
- (i) Step 8: Select another two representative surfaces of the unpaved road shoulder or median and repeat this test method. Once you have calculated the silt loading 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/ft<sup>2</sup>, the surface is stable.

- (k) Independent Laboratory Analysis: You may choose to collect 3 samples from the source, according to Step 1 (Subsection 93.4.1.2 (b) of this Regulation), and send them to an independent laboratory for silt loading 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 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

93.4.1.3 **GRAVEL DEPTH AND SILT CONTENT TEST METHOD:** The purpose of this two (2) part test method is to estimate the gravel depth and silt content of graveled road shoulders and medians of PAVED roads. Two (2) inches of gravel are required to prevent vehicle tires from digging through the gravel. The higher the silt content in the top inch of the gravel, the greater the amount of fine dust particles that are entrained into the atmosphere when vehicles drive on gravel-stabilized shoulders.

- (a) Equipment necessary to collect a sample of material from the surface of the subject area, including a sampling device one (1) foot by one (1) foot by one (1) inch deep, and other equipment such as, a small whisk broom or paintbrush with bristles no longer than 1.5 inches, dustpan, spatula, shallow container, sealable plastic bags, ruler, and wood dowel or similar straight edge device.
- (b) Step 1: Look for a section within four (4) feet of the edge of pavement that has an existing gravel surface that appears representative of the gravel shoulder. Using the spatula, remove the gravel from a three (3) to five (5) inch diameter area to the depth of the applied gravel surface. Make sure that the removed gravel is placed well away from the cleared area. Place a wooden dowel or other similar narrow object across the cleared survey area, and measure, perpendicular to the narrow object, to depth of the cleared area to determine the depth of the gravel material. If the depth of the gravel material is less than two (2) inches, the area fails and is not considered stable. If the depth of the gravel material is two (2) inches or greater, go to Step 2 (Subsection 93.4.1.3 (c) of this Regulation).

- (c) Step 2. Using the one (1) foot by one (1) foot by one (1) inch deep sampling frame, gently press the edges of the frame into the road shoulder surface to a depth of one (1) inch. Collect the sample of loose surface material using the whiskbroom, brush, spatula, and dustpan to collect the material into the sample bag, minimizing escape of dust particles. Collect all material to a one (1) inch depth in the one (1) square foot sampling frame.
- (d) Step 3. Repeat Steps 1 and 2 to obtain two (2) additional samples for a total of three (3) samples. In the event any sampled location is found to have less than (2) inches of gravel under Step 1, the shoulder is considered to be unstable. Do not proceed with additional sampling.
- (e) Step 4. Laboratory Analysis: Samples collected from this source, according to Step 3 (Subsection 93.4.1.3 (d) of this Regulation), are sent to a laboratory for silt content analysis. The test method the laboratory is required to use is:
  - i. Wet screen the entire sample through a one (1) inch sieve.
  - ii. For all material passing through the one (1) inch sieve, use ASTM No. 200 wet Sieve Method to determine the percentage content of silt.
- (f) Step 5: Examine Results. Average the silt content for the (3) samples. If the average silt content of the three samples is equal to or less than or six (6) percent, the surface is stable.

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June 3, 2003; July 1, 2004.

**CLARK COUNTY**

**AIR QUALITY REGULATIONS**

**SECTION 94 – PERMITTING AND DUST CONTROL FOR  
CONSTRUCTION ACTIVITIES**

**94.1 Purpose.**

94.1.1 The purpose of this section of the Air Quality Regulations is:

- (a) To limit the EMISSION of PARTICULATE MATTER into the AMBIENT AIR by preventing, controlling, and mitigating FUGITIVE DUST from CONSTRUCTION ACTIVITIES; and
- (b) To establish FUGITIVE DUST control standards for Clark County, define reasonable precautions for the prevention and control of FUGITIVE DUST from all CONSTRUCTION ACTIVITIES and to establish thresholds for enforcement of these standards.

**94.2 Applicability.**

94.2.1 This section of the Air Quality Regulations applies to all CONSTRUCTION ACTIVITIES that disturb or have the potential to disturb soils and that emit or have the potential to emit particulate matter into the atmosphere. This section covers the requirements for a Dust Control Permit and a Dust Mitigation Plan as well as the application procedures.

94.2.2 For the purpose of this Regulation, CONSTRUCTION ACTIVITIES include, but are not limited to, the following practices:

- (a) Land clearing, maintenance, and land cleanup using machinery;
- (b) soil and rock excavation or removal;
- (c) soil or rock hauling;
- (d) soil or rock crushing or screening;
- (e) filling, compacting, stockpiling and grading;
- (f) explosive blasting;
- (g) demolition;
- (h) implosion;



- (i) handling of building materials capable of entrainment in air (e.g., sand, cement powder);
- (j) abrasive blasting;
- (k) concrete, stone, and tile cutting;
- (l) mechanized trenching;
- (m) initial landscaping;
- (n) operation of motorized machinery;
- (o) driving vehicles on a CONSTRUCTION site; and
- (p) establishing and/or using staging areas, parking areas, material storage areas, or access routes to or from a CONSTRUCTION site.

94.2.3 This regulation shall not apply to operation of emission units or activities permitted under any other section of the Air Quality Regulations, with the specific exception that any CONSTRUCTION ACTIVITIES that occur at such facilities and the land area that Various Location Operating Permits are located on shall be subject to this regulation. In all permits issued under the Air Quality Regulations the provisions of this section shall be considered as part of a BACT determination.

94.2.4 This regulation shall not apply to NORMAL FARM CULTURAL PRACTICES and existing equestrian facilities that are in compliance with zoning requirements.

94.2.5 This regulation shall not apply to emergency activities that may disturb the soil, conducted by any utility or government agency in order to prevent public injury or restore critical utilities to functional status.

94.3 **Definitions.**

94.3.1 For the purpose of this section of the Air Quality Regulations, terms listed in this subsection have the meanings ascribed.

94.3.2 **Best Available Control Measures (BACM):** means those control measures that are the best available with current technology for reducing or eliminating the release of particulate matter into the atmosphere from construction activities. These include but are not limited to all measures listed in the Construction Activities Dust Control Handbook as Best Management Practices, any control measure required by a Corrective Action Order, and any other control measures required by the Control Officer.

94.3.3 **Construction Activities Dust Control Handbook:** means the reference manual used to complete a Dust Control Permit and a Dust Mitigation Plan, and contains a listing of the Best Management Practices, copies of

which are on file in the office of the Clark County Department of Air Quality and Environmental Management.

- 94.3.4 Department or DAQEM: means the Clark County Nevada, Department of Air Quality and Environmental Management.
- 94.3.5 Dust Mitigation Plan: means an attachment to a Dust Control Permit that lists all the Construction Activities that shall occur and the Best Management Practices that shall be used, to mitigate dust at a permitted site. Upon approval of the application the Dust Mitigation Plan becomes an enforceable part of the Dust Control Permit.
- 94.3.6 Gravel: means a mineral or rock aggregate ranging in size from 0.25 inch to 3 inch on its longest dimension that is either natural or the product of a mineral processing operation and contains no more than 6% silt, by weight.
- 94.4 **Permits Required, Exemptions from Required Permit and Responsibility when Exempt.**
- 94.4.1 Prior to engaging in any CONSTRUCTION ACTIVITIES, the property OWNER AND/OR OPERATOR, who is the owners designee shall apply for and obtain a DUST CONTROL PERMIT from the Clark County Department of Air Quality and Environmental Management.
- 94.4.2 A DUST CONTROL PERMIT shall not be required for soil disturbing or CONSTRUCTION ACTIVITIES less than 0.25 acre in overall area, mechanized trenching less than one hundred (100) feet in length, or for mechanical demolition of any structure smaller than one thousand (1,000) square feet.
- 94.4.3 The following activities shall not require a DUST CONTROL PERMIT:
- (a) Landscaping by an individual at his/her place of residence;
  - (b) EMERGENCY maintenance activities conducted by government agencies on publicly maintained roads, road shoulders, right-of-ways and on public flood control facilities; or,
  - (c) Weed removal or dust palliative application projects conducted solely for the purpose of compliance with weed abatement or vacant land dust control regulations, wherein no grade elevation changes, no soil or rock is imported or exported, or no cut and fill operations occur. Importing of gravel or rock for use as a dust palliative is allowed under this subsection.

**94.5 Permit Applications.**

- 94.5.1 Application for issuance or renewal of a DUST CONTROL PERMIT shall be made on a form and in a manner prescribed by the CONTROL OFFICER.
- 94.5.2 Each application shall be accompanied by payment of a fee in accordance with Section 18.
- 94.5.3 Public agency maintenance projects, performed by that agency's employees, may be eligible for a waiver of permit fees upon approval of the CONTROL OFFICER.
- 94.5.4 All applications for a DUST CONTROL PERMIT shall include a Dust Mitigation Plan with appropriate CONTROL MEASURES from the Construction Activities Dust Control Handbook for every CONSTRUCTION ACTIVITY to be conducted. Other CONTROL MEASURES that are at least as effective as CONTROL MEASURES contained in the Construction Activities Dust Control Handbook may be implemented provided they meet the criteria outlined in Section 2 of the introduction to the Best Management Practices section of the handbook and with the approval of the CONTROL OFFICER.
- 94.5.5 An application for a DUST CONTROL PERMIT for a CONSTRUCTION project ten (10) acres or more in area, for trenching activities one (1) mile or greater in length, or for structure demolition using implosive or explosive blasting techniques, shall be required to submit a detailed supplement to the Dust Mitigation Plan. This supplement shall be in the form of a written report and shall, at minimum, detail the project description, the area and schedule of the phases of land disturbance, the Control Measures and the Contingency Measures to be used for all CONSTRUCTION ACTIVITIES. This supplement shall become part of the DUST CONTROL PERMIT as an enforceable permit condition.
- 94.5.6 An application for a DUST CONTROL PERMIT that includes demolition of a structure One thousand (1,000) square feet or greater in area or explosive blasting of rock or soil, shall include the appropriate supplemental form that is provided in Attachment 1 of the Construction Activities Dust Control Handbook for each activity. These forms shall become part of the DUST CONTROL PERMIT as an enforceable permit condition.
- 94.5.7 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. The soils analysis shall use the appropriate ASTM test method to determine soil types. If the soils analysis identifies two or more soil types, the area of each soil type shall be shown on a map of the project. A copy of the map shall be included in the application for the Dust Control Permit. The soils analysis shall utilize at least one (1) sample taken from the top one (1) foot of soil for each soil type identified. The

soils analysis shall use the appropriate ASTM test to determine the silt content and optimum moisture of the sample(s). The application for the Dust Control Permit shall contain the particulate emission potential (PEP) for each soil type identified calculated from the results of the soils analysis and the Silt Content vs. Optimum Moisture Content Chart (figure 2) in the Construction Activities Dust Control Handbook. The choice of Best Management Practices for the Dust Mitigation Plan may be different for each soil type area, if not, the highest PEP identified on the project shall be used.

94.5.8 The application shall be signed by the property owner or the owner's designee as listed on the "Owner's Designee for Dust Control Permit for Construction Activities" form.

94.5.9 Upon approval, the completed DUST CONTROL PERMIT application, Dust Mitigation Plan and related maps and forms shall become a part of the DUST CONTROL PERMIT.

94.6 **DUST CONTROL PERMIT Requirements.**

94.6.1 Issuance or renewal of each DUST CONTROL PERMIT requires payment of a DUST CONTROL PERMIT fee in accordance with Section 18.

94.6.2 A DUST CONTROL PERMIT is to be granted subject to the right of inspection of such affected land without prior notice by the CONTROL OFFICER.

94.6.3 The permit shall be granted subject to, but not limited to, the following conditions:

- (a) The permittee is responsible for ensuring that all PERSONS abide by the conditions of the permit and these regulations;
- (b) The permittee is responsible for supplying complete copies of the DUST CONTROL PERMIT including the Dust Mitigation Plan, to all project contractors and subcontractors; and,
- (c) The permittee is responsible for all permit conditions, until a Certificate of Project Completion (form DCP 08 see Attachment 1) has been submitted by the permittee and approved by the Control Officer.

94.6.4 The signature of the OWNER AND/OR OPERATOR who is the OWNER's designee on the DUST CONTROL PERMIT shall constitute agreement to accept responsibility for meeting the conditions of the permit and for ensuring that Best Available Control Measures are implemented throughout the project site.

- 94.6.5 Requirements and conditions of the DUST CONTROL PERMIT shall be made a part of the specifications of the CONSTRUCTION contract between the owner and prime contractor and contracts between the prime contractor and applicable subcontractors. Said contracts must provide a monetary allowance for any dust control options specified in the Dust Mitigation Plan. The amount of the allowance may be specified either by the OWNER, competitively bid, or negotiated by and amongst the parties.
- 94.6.6 Projects less than 0.25 acres in area under common control that are either contiguous or separated only by a public or private roadway and that cumulatively equal or exceed 0.25 acre in area are also required to obtain a DUST CONTROL PERMIT. These projects are required to meet all DUST CONTROL PERMIT requirements based on cumulative area. All contiguous projects under common control may be required to obtain and operate under a single permit, at the discretion of the CONTROL OFFICER.
- 94.6.7 A DUST CONTROL PERMIT shall be required for routine, public agency road maintenance, road shoulder maintenance, flood control facility maintenance, and maintenance activities that disturb soil and are capable of causing FUGITIVE DUST. Such Dust Control Permits may be issued based upon written monthly, quarterly, semi-annual, or annual schedules of work for routine maintenance activities. Such permits shall include a Dust Mitigation Plan listing all activities to be performed that may disturb the soil, and shall include BEST MANAGEMENT PRACTICES for all these activities. Public agencies shall quantify miles and acres of maintenance activities to be performed under the conditions of the Dust Control Permit.
- 94.6.8 The permit holder shall notify the DEPARTMENT OF AIR QUALITY AND ENVIRONMENTAL MANAGEMENT in writing within ten (10) days following the cessation of active operations on all or part of a CONSTRUCTION site when cessation will extend thirty (30) days or longer.
- 94.6.9 A Dust Control Permit is valid for one calendar year from the date of issuance.
- 94.6.10 A complete copy of the Dust Control Permit shall be kept on the project site at all times that Construction Activities occur and made available upon request of the Control Officer.
- 94.7 **General and Administrative Standards.**
- 94.7.1 Anyone engaging in CONSTRUCTION ACTIVITIES on a site having a Dust Control Permit shall be subject to all conditions set forth in that permit. Failure to comply with any condition set forth in the permit shall be in violation of this section of the Air Quality Regulations.

- 94.7.2 The Construction Activities Dust Control Handbook, excluding all attachments, is adopted and made a part of this section of the Air Quality Regulation, as if it were fully set forth herein, except as amended by this Regulation.
- 94.7.3 **DUST CONTROL PERMIT: Restrictions on issuance; Suspension; Revocation; Requirement for Bond; Right to Appeal:**
- 94.7.3.1 Permits shall not be issued to an applicant having outstanding unpaid DAQEM fees and/or penalties, not under appeal.
- 94.7.3.2 If an OWNER AND/OR OPERATOR has three (3) Notices of Violation that have been adjudicated by the HEARING OFFICER at the same project for which the Dust Control Permit was issued, the CONTROL OFFICER or his/her representative may suspend or revoke the permit. Upon suspension or revocation of a permit, all activities that are authorized by that permit shall cease. The CONTROL OFFICER shall post notices of suspension or revocation conspicuously on the property involved. The notice shall state the reasons and indicate the date and time of suspension and/or revocation. The suspension or revocation shall remain in effect until such time as rescinded by the CONTROL OFFICER. If the permit has been suspended, the permit may be reinstated. If revoked, a new permit will not be issued until an application is made and fees paid in accordance with Section 18 of these regulations. The permittee shall have a right to hearing before the HEARING OFFICER within five (5) working days from date of issuance of the suspension or revocation. Alternatively, in such instances, the CONTROL OFFICER may require compliance with Subsection 94.7.6 for all operators of earth moving or soil disturbing equipment.
- 94.7.3.3 If during any 180 day period an OWNER AND/OR OPERATOR has three (3) NOTICES OF VIOLATION that have been adjudicated by the HEARING OFFICER for the same construction site, the CONTROL OFFICER shall require the posting of a surety bond to ensure implementation of the mitigation measures set forth in the approved Dust Control Permit for the subject site. If an OWNER AND/OR OPERATOR has two (2) or more NOTICES OF VIOLATION that have been adjudicated by the HEARING OFFICER from the DAQEM for: failure to obtain a Dust Control Permit; failure to implement BEST MANAGEMENT PRACTICES; or failure to comply with a Corrective Action Order, the CONTROL OFFICER may, as a condition of obtaining or maintaining a Dust Control Permit, issue a Corrective Action Order requiring the OWNER AND/OR OPERATOR to post a surety bond to ensure the implementation of the mitigation measures set forth in said Dust Control Permits.

The OWNER AND/OR OPERATOR shall provide the CONTROL OFFICER the surety bond executed in a form acceptable to the CONTROL OFFICER for the approved Dust Control Permit as the principal with a corporation authorized to transact surety business in the State of Nevada. The OWNER AND/OR OPERATOR shall condition the surety bond upon the faithful performance of all other conditions of the permit and faithful compliance with the provisions of these regulations. The surety bond shall remain in effect until the construction activity specified in the said Dust Control Permit is complete and the department closes the said Dust Control Permit. The amount of each bond required by this section shall equal the estimated cost of implementing the dust CONTROL MEASURES set forth in the approved Dust Control Permit plus an additional 10% of the estimated cost to cover contingencies, as determined by the DAQEM.

94.7.3.4 Any PERSON aggrieved by a decision of the CONTROL OFFICER pursuant to this section may appeal in accordance with Section 7 of these Regulations.

94.7.4 **Corrective Action Orders (CAO) and Notices of Violation (NOV).**

94.7.4.1 If it is found that any provision of Section 94, a DUST CONTROL PERMIT, or a Dust Mitigation Plan has not been complied with, the CONTROL OFFICER may issue a Corrective Action Order to any OWNER AND/OR OPERATOR or other PERSON that they may be in violation of these regulations and said finding shall be corrected within a specified period of time, dependent upon the scope and extent of the problem.

94.7.4.2 The failure to comply with the corrective measures of a Corrective Action Order within the specified period of time shall be a violation of this section of the Air Quality Regulations.

94.7.4.3 Regardless of whether a Corrective Action Order has been issued, the CONTROL OFFICER may issue a Notice of Violation upon determination that the OWNER AND/OR OPERATOR is out of compliance with any provisions of this section of the Air Quality Regulations, a DUST CONTROL PERMIT, a Dust Mitigation Plan, or upon the failure to comply with a previously issued Corrective Action Order.

94.7.4.4 The CONTROL OFFICER, or his/her designee shall be further empowered to enter upon any said land where any loose soil or dust problem exists, and to take such remedial and corrective action as may be deemed appropriate to cope with and relieve, reduce, or remedy the loose soil, dust situation or condition, when the OWNER AND/OR OPERATOR fails to do so.

- 94.7.4.4.1 Any cost incurred in connection with any such remedial or corrective action by the Department of Air Quality and Environmental Management or any PERSON acting for the Department of Air Quality and Environmental Management shall be reimbursed by the land OWNER AND/OR OPERATOR. If these costs are not reimbursed the CONTROL OFFICER may request a lien be placed on the subject lands that shall remain in full force and effect until any and all such costs have been collected.
- 94.7.4.5 Any additional CONTROL MEASURES prescribed by the CONTROL OFFICER in a Corrective Action Order, issued to the holder of a Dust Control Permit, shall become a part of that permit's Dust Mitigation Plan.
- 94.7.5 **Dust Control Monitor.**
- 94.7.5.1 Any CONSTRUCTION project having 50 acres or more of actively disturbed soil at any given time shall be required by the CONTROL OFFICER to have in place an individual designated as the Dust Control Monitor with full authority to ensure that dust CONTROL MEASURES are implemented, including inspections, record keeping, deployment of resources, and shut-down or modification of CONSTRUCTION ACTIVITIES as needed. This individual shall be listed on the Construction Site Dust Control Monitor form provided in Attachment 1 of the Construction Activities Dust Control Handbook.
- 94.7.5.2 A Dust Control Monitor shall also be required for individually permitted projects that have less than fifty (50) acres of actively disturbed soil if they are:
- (a) under common control and are either contiguous or separated by a public or private roadway and cumulatively have fifty (50) acres or more of actively disturbed soil; or
  - (b) under common control and not contiguous, but are contained within a common master-planned community and cumulatively have fifty (50) acres or more of disturbed soil.
- 94.7.5.3 The Dust Control Monitor shall be present at all times CONSTRUCTION ACTIVITIES occur on the project site and shall devote the majority of his/her time specifically to managing dust prevention and control on the site.
- 94.7.5.4 The requirement for a Dust Control Monitor shall lapse when:
- (a) the area of actively disturbed soil becomes less than fifty (50) acres;
  - (b) the previously disturbed areas have been stabilized in accordance with the requirements of these Regulations; and,
  - (c) the stabilization has been approved and the acreage verified by the CONTROL OFFICER.



- 94.7.5.5 A Dust Control Monitor shall be considered qualified when he/she has met the following minimum qualifications:
- (a) successfully completed the Basic Dust Control Class;
  - (b) successfully completed the Dust Control Monitor Class;
  - (c) two years of experience in the CONSTRUCTION industry; and,
  - (d) successfully completed a course that certifies him/her in Visual Emissions Evaluation (VEE) that has been approved or is conducted by the CONTROL OFFICER.
- 94.7.5.6 For a Dust Control Monitor to maintain his/her certification he/she must successfully complete the Dust Control Monitor class at least once every three years.
- 94.7.6 **Dust Control Class.**
- 94.7.6.1 The CONSTRUCTION site superintendent or other designated on-site representative of the project developer and all construction site supervisors and foremen shall be required to have successfully completed a Clark County Department of Air Quality and Environmental Management Dust Control Class.
- 94.7.6.2 Water truck and water pull driver(s) for each CONSTRUCTION project shall be required to have successfully completed a Clark County Department of Air Quality and Environmental Management Dust Control Class.
- 94.7.6.3 All individuals required to attend and successfully complete the Dust Control Class shall do so at least once every three years.
- 94.7.6.4 CONSTRUCTION site workers and equipment operators, may be required to attend a Dust Control Class as a remedial or corrective measure.
- 94.7.7 Signage Requirements.
- 94.7.7.1 For each Dust Control Permit issued where the project site is less than or equal to ten (10) acres, or for trenching projects between one hundred (100) feet and one (1) mile in length, or for demolition of a structure totaling one thousand (1,000) square feet or more, the permittee shall install a sign on the project site prior to commencing CONSTRUCTION ACTIVITY that is visible to the public and measures, at minimum, four (4) feet wide by four (4) feet high, conforming to Department policy on Dust Control Permit Design and Posting of Signage listed in Attachment 4 of the Construction Activities Dust Control Handbook.

94.7.7.2 For each Dust Control Permit issued where the project site is over ten (10) acres, or for trenching projects aggregating one (1) mile or greater in length, the permittee shall install a sign on the project site prior to commencing CONSTRUCTION ACTIVITY and visible to the public and measures, at minimum, eight (8) feet wide by four (4) feet high, conforming to Department policy on Dust Control Permit Design and Posting of Signage listed in Attachment 4 of the Construction Activities Dust Control Handbook.

94.7.7.3 Projects shorter than two (2) weeks in duration may request a waiver of the requirement of posting a DUST CONTROL PERMIT Sign.

#### 94.7.8 **Record Keeping.**

94.7.8.1 On a site having a Dust Control Permit a written record of self inspection shall be made each day soil disturbing work is conducted. The "Record of Daily Dust Control" form provided in Appendix A of the Construction Activities Dust Control Handbook, or other written record that provides at a minimum the same information, shall be completed.

94.7.8.2 Records of CONSTRUCTION site self inspections shall be kept for a minimum of one (1) year or for six (6) months beyond the project duration, whichever is longer. Self inspection records include daily inspections for crusted or damp soil, trackout conditions and cleanup measures, daily water usage, DUST SUPPRESSANT application records, etc.

94.7.8.3 For CONTROL MEASURES involving chemical or organic soil stabilization, records shall indicate the type of product applied, vendor name, label instructions for approved usage, and the method, frequency, concentration, and quantity of application.

#### 94.8 **Soil Stabilization Standards.**

94.8.1 All permittees, contractors, OWNERS, operators, or other PERSONS involved in CONSTRUCTION ACTIVITIES shall employ CONTROL MEASURES as set forth in the Construction Activities Dust Control Handbook.

94.8.2 One or a combination of the following methods shall be used to maintain dust control on all disturbed soils on Construction Sites and staging areas:

(a) The soil shall be maintained in a sufficiently damp condition to prevent loose grains of soil from becoming dislodged when the disturbed soil is tested using the Drop Ball Test outlined in Subsection 94.12.5; or

(b) The soil shall be crusted over by application of water, as demonstrated by the Drop Ball Test outlined in Subsection 94.12.5; or

- (c) The soil shall be completely covered with clean gravel or treated with a DUST SUPPRESSANT approved by the CONTROL OFFICER, to the extent necessary to pass a Drop Ball Test outlined in Subsection 94.12.5.
- 94.8.3 When a CONSTRUCTION site or part thereof becomes inactive for a period of thirty (30) days or longer, long-term stabilization shall be implemented within ten (10) days following the cessation of active operations.
- 94.8.4 Stockpiles located within one hundred (100) yards of occupied buildings shall not be constructed over eight (8) feet in height.
- 94.8.5 Stockpiles over eight (8) feet high shall have a road bladed to the top to allow water truck access or shall have a sprinkler irrigation system installed, used and maintained.
- 94.9 **Best Available Control Measures (BACM)**
- 94.9.1 Any PERSON who engages in a Construction Activity as defined in this regulation shall employ BACM for the purpose of dust control.
- 94.9.2 All CONTROL MEASURES that are necessary to maintain soil stability as well as those listed in an approved Dust Mitigation Plan, shall be implemented twenty four (24) hours a day, seven (7) days a week, until the permit is closed in accordance with Subsection 94.6.3(c).
- 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 or Intermittent Emissions Method, in excess of 50% OPACITY using the Instantaneous Method, or one hundred (100) yards in length from the point of origin, in spite of the use of Best Available CONTROL MEASURES, 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 wind conditions are such that the continued operation of watering equipment cannot reduce FUGITIVE DUST EMISSIONS or that continued equipment operation poses a safety hazard.
- 94.9.4 If a Dust Control Permit is not required, the OWNERS, operators, or any other PERSON involved in CONSTRUCTION ACTIVITIES shall employ BEST MANAGEMENT PRACTICES, as set forth in the Construction Activities Dust Control Handbook and comply with the soil stabilization standards listed in Subsections 94.8 and emissions standards listed in Subsection 94.11.
- 94.10 **CONSTRUCTION ACTIVITIES Violations.**

- 94.10.1 Any of the following circumstances constitute a violation of the Clark County Air Quality Regulations:
- (a) Failure to obtain an approved DUST CONTROL PERMIT before engaging in activities that disturb or have the potential to disturb soils and/or cause or have the potential to cause FUGITIVE DUST to enter the air.
  - (b) Failure to obtain an approved DUST CONTROL PERMIT for all areas subject to CONSTRUCTION ACTIVITIES.
  - (c) Conducting a CONSTRUCTION ACTIVITY as defined by Subsection 94.2 for which no specified control option is indicated in the approved DUST CONTROL PERMIT or the Dust Mitigation Plan.
  - (d) Failure to perform any duty to allow or carry out an inspection, entry, or monitoring activity required by the Department of Air Quality and Environmental Management.
  - (e) Failure to renew or obtain a new permit, prior to a DUST CONTROL PERMIT expiring, provided the site does not meet the exemption requirements for a DUST CONTROL PERMIT as defined in Subsection 94.4.2.
  - (f) Failure to implement any item that is listed as a "Requirement" in the Best Management Practices section of the Construction Activities Dust Control Handbook for an applicable Construction Activity.
  - (g) Failure to implement any BEST MANAGEMENT PRACTICE listed in an approved DUST CONTROL PERMIT / Dust Mitigation Plan.
  - (h) Failure to maintain static (not actively worked) project soils with adequate surface crusting to prevent wind erosion as measured by test method "Soil Crust Determination (The Drop Ball Test)" in Subsection 94.12.5, or alternative control measures approved in the Dust Mitigation Plan.
  - (i) Failure to comply with any record keeping requirements of this section.
  - (j) Failure to maintain project haul routes or haul roads in a stable condition as measured by the Intermittent Emissions test method outlined in Section 94.12.3.
  - (k) Failure to have a Dust Control Monitor in place, per Subsection 94.7.5, for a Construction project.
  - (l) Allowing FUGITIVE DUST emissions to exceed the standards set forth in Subsection 94.11.1 through 94.11.4.
  - (m) Using a dry rotary brush or blower device without sufficient water to limit emissions per Subsection 94.11.5.
  - (n) Allowing mud or dirt to be tracked out onto a paved road that exceed the standards set forth in Subsection 94.11.6.

- (o) Failure to comply with any other provision of this section.

**94.11 Emission Standards.**

- 94.11.1 No PERSON shall cause or permit the handling, transporting, or storage of any material in a manner that allows visible emissions of particulate matter to exceed: 20% OPACITY using the Time Averaged Method or the Intermittent Emissions Method; 50% OPACITY using the Instantaneous Method. These Test Methods are set forth in Subsection 94.12.
- 94.11.2 No PERSON shall cause or permit the handling, transporting, or storage of any material in a manner that allows a dust plume that extends one hundred (100) yards or more, horizontally or vertically, from the point of origin.
- 94.11.3 Where a DUST CONTROL PERMIT is required and has not been issued or in the event Best Available CONTROL MEASURES have not been fully implemented, no PERSON shall cause or permit the handling, transportation, or storage of any material in a manner that exceeds the limits listed in any one of the following:
  - (a) The limits set forth in Subsection 94.11.1; or
  - (b) Allow a dust plume to extend more than one hundred (100) feet, horizontally or vertically, from the point of origin; or
  - (c) Allow a dust plume to cross a property line.
- 94.11.4 Visible emissions from abrasive blasting shall be limited to no more than an average of 40% OPACITY for any period aggregating three (3) minutes in any sixty (60) minute period, utilizing the test method set forth in Subsection 94.12.
- 94.11.5 The use of dry rotary brushes and blower devices for removal of deposited mud/dirt trackout from a paved road is prohibited, unless sufficient water is applied to limit the visible emissions to an OPACITY of not greater than: 20% OPACITY using the Time Averaged Method or Intermittent Emissions Method; 50% OPACITY using the Instantaneous Method. These test methods are set forth in Subsection 94.12. The use of rotary brushes without water is prohibited.
- 94.11.6 Mud or dirt shall not be allowed to be tracked out onto a paved road where such mud or dirt extends fifty (50) feet or more in cumulative length from the point of origin or allow any trackout to accumulate to a depth greater than 0.25 inch. Notwithstanding the preceding, all accumulations of mud or dirt on curbs, gutters, sidewalks, or paved roads including trackout less than fifty (50) feet in length and 0.25 inch in depth, shall be cleaned and

maintained to eliminate emissions of Fugitive Dust. At a minimum all trackout must be cleaned up by the end of the workday or evening shift, as applicable.

94.12 **Test Methods**

94.12.1 Visual Determination of OPACITY of EMISSIONS from Sources of Visible EMISSIONS.

**Applicability:** This method is applicable for the determination of the OPACITY of EMISSIONS from sources of visible EMISSIONS. The Time Averaged Method requires averaging of visible EMISSION readings over a specific time period to determine the OPACITY of visible EMISSIONS. The Time Averaged Method is applicable to continuous EMISSIONS sources. The Intermittent Emissions Method requires averaging a set number of visible EMISSIONS readings to determine the OPACITY of visible EMISSIONS. The Intermittent Emissions Method is applicable to Intermittent EMISSIONS sources. The Instantaneous Method sets an OPACITY limit that shall not be exceeded at any time. The Instantaneous Method is applicable to any emissions source and is a non-federal requirement.

**Principle:** The OPACITY of EMISSIONS of a source of visible EMISSIONS is determined visually by an observer who has current certification approved by the Control Officer, as a qualified Visible EMISSIONS Evaluator, using US EPA Method 9.

**Procedures:** A qualified Visible EMISSIONS Evaluator shall use the procedures set forth in Subsections 94.12.2, 94.12.3, and 94.12.4 for visually determining the OPACITY of EMISSIONS.

94.12.2 **Time Averaged Method:** These procedures is for evaluating continuous FUGITIVE DUST EMISSIONS and are for the determination of the OPACITY of continuous FUGITIVE DUST EMISSIONS by a qualified observer. Continuous FUGITIVE DUST EMISSIONS sources include activities that produce emissions continuously during operations such as earthmoving, grading, and trenching. Emissions from these types of continuous activities are considered continuous even though speed of the activity may vary and Emissions may be controlled to 100%, producing no visible emissions, during parts of the operation. The qualified observer should do the following:

- (a) **Position:** Stand at a position at least twenty (20) 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. 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 earth moving equipment, as long as the sun

remains oriented in the 140° sector to the back. As much as possible, 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 (e.g., earthmoving, grading, trenching), 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 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. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet 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 at a point just beyond where material is not being deposited out of the plume (normally three (3) feet above the mechanical equipment generating the plume).
- (d) **Recording Observations:** Record the OPACITY observations to the nearest 5% every fifteen (15) seconds on an observational record sheet. Each momentary observation recorded represents the average OPACITY of EMISSIONS for a fifteen (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 fifteen (15) second interval reading. Readings identified as "x" shall be considered interrupted readings.
- (e) **Data Reduction For Time-Averaged Method:** For each set of twelve (12) or twenty four (24) consecutive readings, calculate the appropriate average OPACITY. Sets shall 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.

94.12.3 **Intermittent EMISSIONS Method:** This procedure is for evaluating Intermittent FUGITIVE DUST EMISSIONS: This procedure is for the determination of the OPACITY of intermittent FUGITIVE DUST EMISSIONS by a qualified observer. Intermittent FUGITIVE DUST EMISSIONS sources include activities that produce

emissions intermittently such as screening, dumping, and stockpiling where predominant emissions are produced intermittently. The qualified observer should do the following:

- (a) **Position:** Stand at a position at least twenty (20) 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. 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. As much as possible, 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 (e.g., pile, material handling, 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 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. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet above the surface from which the plume is generated). Make two observations per plume at the same point, beginning with the first reading at zero (0) seconds and the second reading at five (5) seconds. The zero (0) second observation should begin immediately after a plume has been created above the surface involved.
- (d) **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 five (5) second period.
- (e) Repeat Subsection 94.12.3(c) of this Regulation and Subsection 94.12.3(d) of this Regulation until you have recorded a total of 12 consecutive OPACITY readings. This will occur once six intermit plumes on which you are able to take proper readings have been observed. 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) Average the 12 OPACITY readings together. If the average OPACITY reading equals 20% or lower, the source is in compliance with the averaged method OPACITY standard described in this Section.



94.12.4

**Instantaneous Method:** This is a non-federal procedure for evaluation of FUGITIVE DUST EMISSIONS: This procedure is for the instantaneous determination of the OPACITY of FUGITIVE DUST EMISSIONS by a qualified observer. This method is a Clark County local requirement and is not submitted as part of the applicable State Implementation Plan. The qualified observer should do the following:

- (a) **Position:** Stand at a position at least twenty (20) 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. 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 earth moving equipment, as long as the sun remains oriented in the 140° sector to the back. As much as possible, 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 (e.g., earthmoving, grading, storage pile, material handling, 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 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. Make OPACITY observations at a point just beyond where material is no longer being deposited out of the plume (normally three (3) feet above the surface from which the plume is generated).
- (d) **Recording Observations:** Record the OPACITY observations to the nearest 5%.
- (e) **Data Reduction For Instantaneous Regulations:** Evaluate all observations for conformance with the instantaneous regulation.

94.12.5 Soil Crust Determination (The Drop Ball Test):

- (a) Drop a steel ball with a diameter of 0.625 (5/8<sup>th</sup>) inch and a mass ranging from 0.56-0.60 ounce from a distance of one (1) foot directly above the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the soil crust test method is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of a project site that have not originated from the representative surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Subsection 90.4.1.3 (Determination Of Threshold Friction Velocity) of this Regulation to the loose material to determine whether the surface is stabilized.

A sufficient crust is defined under the following conditions: once a ball has been dropped according to Subsection 90.4.1.1 of this Regulation, 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.

- (b) Randomly select each representative disturbed surface for the drop ball test by using a blind "over the shoulder" toss of a throwable object (e.g., a metal weight with survey tape attached). Using the point of fall as the lower left hand corner, measure a one (1) foot square area. Drop the ball three times within the 1-foot by 1-foot square survey area, using a consistent pattern across the survey area. The survey area shall be considered to have passed the Soil Crust Determination Test if at least two out of the three times that the ball was dropped, the results met the criteria in Subsection 90.4.1.1(a) of this Regulation. 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 90.4.1.1(a) of this Regulation for all of the survey areas tested, then the site shall be considered to have passed the Soil Crust Determination Test and shall be considered sufficiently crusted.
- (c) 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 soil crust test as often as necessary on each portion of the overall conditions of the site using the random selection method set forth in Subsection 90.4.1.1(b) of this Regulation for an accurate assessment.

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