CONSTRUCTION DUST CONTROL POLICY

OF THE

YAKIMA REGIONAL CLEAN AIR AGENCY

Control Officer Approval:

Gary W. Pruitt

August 9, 2012
Date

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NOTE: Editorial changes were made to this policy in 2009 to reflect YRCAA Regulation changes and implementation of the civil penalty policy.

BACKGROUND

Introduction

Fugitive dust is particulate matter suspended in the air either by mechanical disturbance of the surface materials or by wind action blowing across the surface. Mechanical disturbance includes re-suspension of particles from vehicles travelling over roadways, parking lots and other open areas. Wind action includes dust blown off inadequately stabilized open areas. The quantity of fugitive dust emissions is dependent on several factors such as the size of the source, emission rate and control efficiency. It is the policy of the Yakima Regional Clean Air Agency to reduce fugitive dust emissions with an emphasis on prevention, rather than mitigation.

Under certain conditions, construction sites generate very large amounts of particulate pollution (fugitive dust) which can constitute a health threat to surrounding populations, contribute to violations of the National Ambient Air Quality Standard and be considered by neighbors as a nuisance.

Historically, during the months of June through September, responding to dust complaints has consumed a large portion of YRCAA compliance resources for that time period. In the past, owners and operators of construction sites have used varying degrees of dust prevention and control, most of which have been only minimally effective. Owners or operators of some construction sites have developed and implemented dust control plans, most of which have proven to be very effective. The purpose of this policy is to achieve a uniform degree of compliance.

Washington Administrative Code and the YRCAA Regulation require air pollution sources to take "reasonable precautions" to prevent the release of fugitive emissions. Since particulate emissions from construction sites are considered to be fugitive emissions, this policy is based on existing regulations and clarifies what constitutes "reasonable precautions" to minimize emissions of fugitive dust from construction sites. The primary mechanism for doing this is to identify industry practices for fugitive dust control and implement these practices according to flexible, site-specific fugitive dust control plans developed for each construction site and reviewed by the YRCAA for adequacy.

Pilot Program

The development of this policy was in itself a pilot program. This process enabled both industry and YRCAA to determine how effective the practices and standards were before formalizing the Policy by Board adoption. Pilot implementation of the Policy was accomplished from May, 1997 through September, 1997. A Construction Dust Control Task Force was selected to participate in the development of this policy. After an assessment of effectiveness was conducted by the Task Force, and changes made, the Policy was submitted for YRCAA Board approval. The Policy was adopted by the Yakima Regional Clean Air Agency Board of Directors on January 14, 1998 and was updated in 2002, 2009 and 2012 to reflect changes in regulatory references and to accommodate the agency name change in 2008.

ARTICLE I: POLICY, SHORT TITLE AND DEFINITIONS

SECTION 1.01 - POLICY

It is declared to be the public policy of the Yakima Regional Clean Air Agency to provide for consistent, effective control of fugitive dust emissions from construction sites sufficient to ensure compliance with laws and regulations; to achieve dust control by describing industry management practices for construction sites which will be implemented through the use of flexible, dust control plans; to clarify what is meant by "reasonable precautions" to prevent emissions of fugitive dust as required by law and regulation; and to inform owners and operators of construction sites of the laws and regulations, effective control measures and how they can demonstrate they are taking "reasonable precautions" to prevent fugitive dust from becoming airborne.

SECTION 1.02 - SHORT TITLE

This policy shall be known and cited as the "Construction Dust Control Policy of the Yakima Regional Clean Air Agency".

SECTION 1.03 - DEFINITIONS

The definitions of terms and phrases contained in Regulation I of the Yakima Regional Clean Air Agency, Chapter 70.94 RCW and Chapter 173-400 WAC are incorporated, by reference, into this policy, unless a different meaning is plainly required by context.

ARTICLE II: APPLICABILITY AND EXEMPTIONS

SECTION 2.01 - APPLICABILITY

This policy shall be applicable to any owner, developer or operator engaged in: construction**,** repair, remodeling or demolition of any building; engaged in any road construction or repair; or construction site preparation or landscaping within the exterior boundaries of Yakima County. Other fugitive dust sources may choose to use this policy to ensure effective control of emissions.

SECTION 2.02 - EXEMPTIONS

A. Emergencies

The provisions of this policy shall not apply to emergency situations, provided that the owner or operator of the source notifies the YRCAA within twenty four hours of the onset of such emergency and utilizes reasonable precautions as soon as is feasible after the emergency has been resolved at any site where:

1. Active operations are being conducted during emergency, life threatening situations, or in conjunction with an officially declared disaster or state of emergency.

2. Active operations are being conducted by public service utilities to provide electricity, natural gas, telephone, water or sewer service during emergency outages.

B. Variances

The provisions of this policy shall not apply to the owner or operator of a site where a variance or a renewal thereof has been granted in accordance with the provisions of Section 3.00 of the YRCAA Regulation I.

ARTICLE III: NOTIFICATION AND IMPLEMENTATION

SECTION 3.01 - SITE SPECIFIC DUST CONTROL PLANS

A. Owners, developers or operators of construction sites, where the potential may exist for significant fugitive dust emissions, shall prepare site specific fugitive dust control plans and submit them to the YRCAA for review 15 days prior to commencement of any work that would disturb soil stability or cover, or otherwise cause fugitive dust emissions.

1. Dust control plans must identify management practices and operational procedures which will effectively control fugitive dust emissions.

2. The YRCAA, planning and code departments, and the submitting party are expected to work together in good faith toward development and submission of a plan which is effective and acceptable to all.

3. Submitting parties must implement acceptable dust control measures according to the criteria and/or implementation schedules outlined in their plans.

4. A submitting party may make modifications to a dust control plan as long as the effectiveness of the plan is not compromised.

5. The YRCAA may initiate action with a submitting party to modify a dust control plan where control measures are not sufficiently effective in minimizing fugitive dust emissions.

B. Dust control plans for sites subject to the provisions of this section must contain the following information:

1. A map or drawing of the site which provides enough detail to allow the YRCAA to adequately review the feasibility and appropriateness of the proposed control measures.

2. A description of the water to be made available to the site, if any. This description should include the source of water and any limitations which would impact the ability to employ water application as a control measure.

3. A description of preventive dust control measures to be implemented, specific to each area, process or phase of the project.

4. A description of contingency measures to be implemented in the event any of the preventive dust control measures become ineffective.

5. A statement, signed by the owner or operator of the site, accepting direct responsibility for the implementation and maintenance of the dust control plan.

6. The name and telephone number of a person available 24 hours a day to mitigate any episodes of significant dust emissions during off-duty hours, in the event preventive measures become ineffective.

7. In the event ownership or control of a site or portion of a site subject to a dust control plan changes, the plan must be resubmitted, complete with the signature of the person to whom the responsibility for dust control has been transferred.

C. The owner of a construction site is ultimately responsible for fugitive dust emissions from a property and thus, for the control of such emissions. The owner is responsible for submitting and implementing the dust control plan. It is expected that many owners will contract the actual development of a plan and implementation of control measures to a developer or contractor.

Dust control plans for sites subject to the provisions of this section shall be developed and accepted according to the following procedures:

1. Within 5 days of receipt of a dust control plan, the YRCAA will review the plan and notify the submitting party of its adequacy, request additional information or propose modifications to the plan.

2. A submitting party must respond to YRCAA requests for additional information or modification of the plan within 5 days.

3. The process of qualifying a plan as adequate shall include good faith discussion, evaluation, collection of information and other efforts to resolve differences of opinion about the plan, so long as reasonable progress toward the development of an adequate plan is being made.

4. The purpose of good faith negotiation is to share information and resolve differences of opinion regarding the plan. Both the submitting party and the YRCAA need to be able to exchange information in good faith. Information obtained in the course of negotiation shall not be used in any future enforcement action.

5. If agreement on a plan cannot be reached after a thorough good faith evaluation of alternatives and consideration of the plan effectiveness, costs and other pertinent matters, the YRCAA may initiate compliance action under applicable regulation.

6. An owner/operator may make modifications to a plan as long as the effectiveness of the control measures are not compromised. Changes to a plan must be documented and the YRCAA must be notified of the changes.

7. Modifications include but are not limited to:
   a. discontinuance of control measures;
   b. changes in operational procedures; and
   c. changes in criteria used to determine implementation of control measures and water

application rates.

SECTION 3.02 - ALTERNATIVE NOTIFICATION

A. In addition to, or as an alternative to, a site specific dust control plan, an owner or operator may submit a master dust control plan that applies to more than one site or project, provided that:

1. The master plan provides for effective control of fugitive dust emissions to all sites and projects to which the plan applies;

2. Additional notification to the YRCAA is submitted as soon as possible, prior to the commencement of work that would disturb ground cover or otherwise cause fugitive dust emissions;

3. Either the master plan or the additional notification lists the name and phone number of a person responsible for the implementation of dust control measures for each of the sites or projects to which the plan applies; and

4. Additional notification includes a plan to address any unique site qualities or project operations for each of the sites or projects to which the plan applies that would impair the effectiveness of dust control measures.

B. Other methods of notification, that meet the intent of this policy, may be accepted, in addition to or as an alternative to, a site specific dust control plan, provided that:

1. The plan provides for effective control of fugitive dust emissions to all sites and projects to which the plan applies;

2. Additional notification to the YRCAA is submitted as soon as possible, prior to the commencement of work that would disturb ground cover or otherwise cause fugitive dust emissions;

3. Either the plan or the additional notification lists the name and phone number of a person responsible for the implementation of dust control measures for each of the sites or projects to which the plan applies;

4. Additional notification includes a plan to address any unique site qualities or project operations for each of the sites or projects to which the plan applies that would impair the effectiveness of dust control measures; and

5. The method of notification is approved by prior written notice by the Construction Dust Control Policy Task Force and the Control Officer.

SECTION 3.03 - FEES FOR NOTIFICATION

Any fee schedule, adopted for the purpose of administering the provisions of this policy, for review of dust control plans or modifications thereto, for administration of contractor certification or for registration shall be subject to approval by the YRCAA Board of Directors.

SECTION 3.04 - EXEMPTIONS

A. Projects involving one single family residence or one duplex dwelling shall be exempt from the requirements of Sections 3.01 and 3.02.

B. This provision shall not apply to a phase of any project that in its entirety involves more than one single family or duplex dwelling.

C. Projects causing complaints of dust emissions that result in a determination by YRCAA staff that reasonable precautions to prevent dust emissions are not being utilized shall not be exempt from the requirements of Sections 3.01 and 3.02.

ARTICLE IV: COMPLIANCE, ENFORCEMENT AND PENALTIES

SECTION 4.01 - COMPLIANCE ASSURANCE

In considering whether a Dust Control Plan is adequate, sufficient to control fugitive dust emissions and ensure compliance with laws and regulations (the purpose of this Policy), the YRCAA shall consider:

1. Whether the plan utilizes reasonable precautions identified in Article V of this Policy;

2. Consistency between the reasonable precautions and those outlined in the Policy;

3. The extent of use and effectiveness of a control measure in reducing dust at other similar sites;

4. The ability of the reasonable precautions to maintain conditions which adequately minimize emissions;

5. Other measures in the plan which may be effective in minimizing fugitive dust, but which are not recognized reasonable precautions; and

6. The adequacy of the operational plan, including the criteria used to begin, end and apply the reasonable precautions.

SECTION 4.02 – ENFORCEMENT

To assure compliance, inspections shall be conducted in accordance with the YRCAA Field Inspection Manual (Section 5 of YRCAA Administrative Code, Part B) and the procedures outlined in Section II of the References Section.

1. If inspection by YRCAA staff indicates that the owner/operator is not in compliance, the YRCAA will request information and/or propose additional or alternative dust control measures. The YRCAA will attempt to work with the owner/operator in good faith to revise the dust control plan to increase its effectiveness.

2. If agreement cannot be reached, or an owner/operator refuses to take appropriate action, the YRCAA may initiate compliance action. Compliance action shall not be taken for failure to comply with this policy, only for violation of existing law or regulation.

SECTION 4.03 - PENALTIES

A. Civil Penalties shall be issued to the owner or operator of a project, for violations, in accordance with YRCAA Regulation I, Section 5 and Section II of the References Section accompanying this policy when one or more of the following conditions exist:

1. The violation resulted in a demonstrable economic benefit;

2. The violator has a history of the same or similar violation;

3. The violation has a probability of placing a person in danger of death or bodily Harm;

4. The violation has a probability of causing more than minor environmental harm; or

5. The violation has a probability of causing physical damage to the property of another in an amount exceeding one thousand dollars.

B. In addition to the above provisions, a specific Civil Penalty may be imposed in accordance with Exhibit II in Section II of the References Section accompanying this policy.

C. If an equipment breakdown or upset condition occurs resulting in a violation, the violation shall not be subject to Civil Penalty, provided that:

1. The owner or operator takes immediate corrective action and reports the breakdown or upset condition to the YRCAA by the next working day;

2. The owner or operator complies with the conditions of WAC 173-400-107;

3. The upset or breakdown was not a result of gross negligence; and

4. The upset or breakdown is not repetitive.

ARTICLE V: REASONABLE PRECAUTIONS

SECTION 5.01 - GENERAL PRINCIPLES

A. The principle mechanism by which most of these reasonable precautions operate is to create and maintain conditions on the entire site and on the surrounding public streets and roadways which prevent loose particles from becoming airborne as fugitive dust.

B. Reasonable precautions utilizing water or surface amendments must be repeated when wind, mechanical or other disturbance has broken an established "crust".

C. An owner or operator may modify the design or operation of reasonable precautions from the systems described below as long as their effectiveness is not compromised.

D. It is expected that, for most sites, a combination of reasonable precautions will be necessary to achieve adequate fugitive dust control on the entire site.

E. The type and condition of the soil, the layout of the site and the project operational plan must be considered when selecting reasonable precautions.

SECTION 5.02 - FACTORS TO CONSIDER

A. Factors to consider in selecting reasonable precautions utilizing water include, but are not limited to the following:

1. Availability of sufficient quantity of water to control dust;
2. Capital and operating costs for equipment;
3. Cost of water;
4. Water quality concerns, including potential for run-off;
5. Selection of criteria for determining when to apply water and what application rates to use under varying conditions;
6. Lead time to achieve adequate coverage; and
7. Ability to supplement with other reasonable precautions.

B. Factors to consider in selecting reasonable precautions not utilizing water include, but are not limited to the following:

1. Capital costs;

2. Water quality concerns, including potential for run-off;

3. Soil conservation concerns;

4. Subsequent site activity or soil use;

5. Ability to supplement with other reasonable precautions;

6. Material and labor cost;

7. Use may be limited;

8. Dependency on adhering to a set schedule; and

9. Ability to cause contractors to commit to a schedule.

C. Factors to Consider when utilizing vegetating include, but are not limited to the following:

1. Length of time required prior to breaking ground;

2. Cost of planting;

3. Cost of water;

4. Cost of labor;

5. Cost of fencing materials; and

6. Ability to supplement with other reasonable precautions.

SECTION 5.03 - EXAMPLES OF REASONABLE PRECAUTIONS

The control measures described herein are offered as a means of defining reasonable precautions. An owner or operator may choose to use one or more of the measures described or may choose to use some other means to prevent fugitive dust from becoming airborne.

A. Set Water Application - Sprinklers

1. Sprinklers are installed throughout the site to prevent dust from becoming airborne.

2. Sprinklers must be selected and installed to allow for maximum coverage of the site and be capable of applying adequate amounts of water to control fugitive dust.

3. Sprinkler systems can provide uniform coverage under favorable (low wind) conditions. High winds can reduce the effectiveness of sprinkler systems.

4. High and low pressure systems may be used to control fugitive dust. High pressure

systems use fewer sprinkler heads under greater pressure to achieve site coverage. Low pressure systems generally use more heads at a lower pressure.

5. System cost and site layout and characteristics are factors to consider in choosing a system. To effectively use any sprinkler system, pre-planning of water use is needed. Sprinklers can be fitted with automated control systems to minimize the labor required to operate the system.

6. Sprinkler systems require varying degrees of maintenance to ensure their effectiveness. Sprinkler systems can be dismantled from one site or area and reused at another site or area with minimal labor or modification.

B. Mobile Water Application - Water Trucks

1. Trucks with water tanks and spray nozzles are driven through the site and water is applied to the ground surface to prevent fugitive dust from becoming airborne. Proper equipment and operation are required to obtain sufficient coverage to ensure that site conditions are adequate to minimize generation of dust. Because large areas cannot be simultaneously covered by a water truck, the decision to apply water must be made early enough that there is sufficient start up time to achieve adequate coverage before fugitive dust becomes a problem.

2. Water trucks have a higher capital cost than sprinkler systems and may have a higher operating cost due to the labor required to operate the truck and nozzles. A means for refilling the truck is required. Maintenance of water trucks and spray equipment is critical to minimizing equipment breakdowns.

3. Water trucks are versatile and can be equipped to apply water to open areas in addition to roads and alleyways. Water trucks may also be used to wash accumulations of soil from paved streets. Trucks may be used at more than one site operating during the same time frame. A water truck may not be capable of accessing all areas of a site.

C. Manual Water Application - Hand-held Spray

Hoses equipped with nozzles similar to fire equipment are used to apply water by directing the water spray to an area to prevent dust from becoming airborne. This method is particularly effective for dealing with small areas such as accesses and alleyways that experience more disturbance than other areas on the site. Hand-held spray is also effective for washing accumulations of soil from equipment prior to the equipment leaving the site to prevent soil from being tracked onto public streets and roads. Hand-held spray may also be used to wash accumulations of soil from public streets and roads.

D. Surface Amendments/Applications (chemical suppressants)

1. One or more of a variety of commercially available products is used to harden, tack or otherwise stabilize the surface of the soil to be resistant to varying degrees of wind, water and mechanical disturbance. Surface amendments may be applied by water truck or injected into a set or portable sprinkler system.

2. Typically, a product is diluted to increase the amount of surface coverage per quantity of product. Dilution will also affect the stabilizing effect of a product and thus some trial and error may be necessary to achieve the desired mixture to adequately control fugitive dust. Some products may be water soluble and less resistant to precipitation and thus, may require more than one application.

3. Some products may interfere with compaction, future vegetation or excavation and may be undesirable due to water quality or soil conservation concerns. A product that is biodegradable would seem to be most desirable. Any surface amendment should be carefully researched prior to use.

E. Covering

1. An area is temporarily covered, either by an impermeable material such as polyethylene sheeting, or by gravel to prevent dust from becoming airborne. This precaution is particularly effective for areas such as spoils piles and areas where it is difficult or impossible to apply water. Covering may also be preferable along utility trenches or other areas where water application could cause unwanted erosion. This precaution also includes covering loads of soil hauled into or out of the site.

2. In some cases, the covering material may be reused, either on site or at another site. Initial cost of the material and labor to install and remove the cover should be considered.

F. Vegetating

Either seeding or otherwise planting sod or other vegetation in areas, typically, where no further site preparation is planned, to prevent dust from becoming airborne. The site development plan should be consulted before choosing to vegetate an area.(See Order of Work) Available access to other areas is a concern since equipment should not be moved across newly vegetated soil.

G. Windbreaks

1. Planting tall vegetation, such as poplar trees, along the prevailing upwind edge of the site may be effective in reducing the volume of dust which is carried away from the site by winds. Constructed windbreaks, such as temporary or permanent tall fences may also be effective in minimizing the effects of wind disturbance.

2. Windbreaks depend on weather conditions for their effectiveness. Changes in wind direction will compromise the effectiveness of this method.

3. Poplar trees take about six years to reach mature heights and require substantial quantities of water to grow rapidly. Long term planning is required to utilize this method.

H. Washing - Removing Accumulations of Soil

The use of water spray to remove particles (soil) that have accumulated on equipment prior to the equipment entering public streets or roads. This precaution is used to eliminate "track-out" from being deposited on public streets or roads and becoming airborne by traffic disturbance. Washing may also be effective in removing accumulations of soil after it has been deposited on public streets and roads, prior to a large enough quantity being deposited to cause significant dust emissions.

I. Order of Work

Planning and conducting specific phases of the development of a site that allow for soil to remain covered with vegetation or otherwise stabilized for as long a period of time as possible during the project. Also, scheduling and conducting the next logical task as promptly as possible will shorten the duration of unstable soil conditions. Arranging the order of work includes, but is not limited to, the following:

1. Not removing ground cover until absolutely necessary;
2. Installing paved streets, driveways, curbs and sidewalks as soon as possible;
3. Not excavating until utilities can be installed promptly; and
4. Back filling as soon as possible.

J. Restricting Access

Restricting access is the use of fences and barricades to physically restrict, or signing to prohibit, access to areas where the soil has been effectively stabilized to prevent fugitive dust emissions. This precaution eliminates the need, in many instances, of having to re-establish the crust in an area where considerable effort has been expended to prevent dust emissions. Portable fencing and barricades can be reused, both on site and, at subsequent sites.

REFERENCES

This section is not an integral part of the Construction Dust Control Policy. It is provided for reference only.

I. STATUTORY AND REGULATORY BACKGROUND

This section is intended to provide the primary regulatory framework for dust emissions from construction sites. Other sections of state code, federal code or YRCAA regulation may apply, but the sections listed below have the most significant bearing on the industry.

AIR QUALITY
The Washington Clean Air Act, RCW 70.94.011 states that it is public policy to preserve, protect and enhance the air quality for current and future generations and the intent is to protect human health and safety, including the most sensitive members of the population. RCW 70.94.380 mandates Local Authorities to have requirements for the control of air emissions that are no less stringent than those of the state.

Construction projects are established as sources of air pollution and are subject to the provisions of WAC 173-400-040, General Regulations for Air Pollution Sources.

This chapter requires the use of "reasonable precautions" for (4) and (9) and emissions are prohibited in (1), (3) and (6).

WAC 173-400-040(2) Visible Emissions, restricts emissions to no greater than 20% for more than 3 minutes in any one hour period.

WAC 173-400-040(3) Fallout, prohibits the emission of particulate matter to be deposited beyond the property under direct control of the source in sufficient quantity to unreasonably interfere with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(4) Fugitive Emissions, requires the use of "reasonable precautions" to prevent the release of air contaminants from any source which is considered a source of fugitive emissions.

WAC 173-400-040(6) Emissions Detrimental to Persons or Property, prohibits the emission of any air contaminant from any source if it is detrimental to the health, safety or welfare of any person, or causes damage to property or business.

WAC 173-400-040(9) Fugitive Dust, requires the source to use "reasonable precautions" to prevent fugitive dust from becoming airborne.

Construction sites are similarly subject to the provisions of YRCAA Regulation I:

Section 3.07, **Asbestos Control,** requires an asbestos survey to be conducted and a notification to be submitted to the YRCAA ten days prior to any building demolition. If the demolition involves disturbance of asbestos materials, this section requires the owner or operator to comply with the provisions of 40 CFR 61, the Federal NESHAPS Regulation.

Section 3.08, Specific Dust Controls, requires water to made available to sites and requires dust plans to be submitted and approved by YRCAA. This section also requires the plan to be implemented sufficient to prevent unreasonable dust emissions.

Article 5, Compliance and Enforcement, provides for criminal and civil penalties to be assessed to any person who violates any of the provisions of RCW 70.94 or YRCAA Regulation 1. This section provides for a penalty up to $12,000 per day per violation.

Other Applicable Regulations

Chapter 70.951 RCW, Used Oil Recycling, prohibits the use of used oil as a dust suppressant. Used oil includes any oil that has been refined from crude oil, used, and as a result of such use, is contaminated by physical or chemical impurities.

Chapter 90.48RCW, **Water Pollution Control**, prohibits the discharge of any material into surface or ground waters that could cause pollution as defined in WAC 173-200-020(22).

Chapter 70.105 RCW, **Hazardous Waste Management**, prohibits the disposal to the ground of any dangerous (hazardous) waste.

Chapter 70.105D RCW, Hazardous Waste Cleanup - Model Toxics Control Act (MTCA), requires the identification and cleanup of hazardous sites.

Chapter 90.03 RCW Surface Water Code and Chapter 90.44 RCW Regulation of Public Ground Waters (wells), requires a water right permit for all surface water withdrawal and for any water from a well that will exceed 5,000 gallons per day.

II. YRCAA CIVIL PENALTY POLICY

The following is an excerpt from YRCAA Administrative Code, Part B, Section 5.

The purpose of this policy is to describe standard procedure and offer guidance for using enforcement actions to address and resolve non-compliance.

1. Standard Procedure to Address Violations

This procedure does not apply to major source High Priority Violations as defined in the EPA Compliance Monitoring Strategy and High Priority Violator Guidance. The nature of compliance assurance dictates that this policy does not fit all situations where non-compliance is found. Professional judgment must be used when applying this policy.

a. Compliance Evaluation
   During the course of a compliance evaluation, a determination is made by the employee whether or not a violation exists. If no violation exists, but the potential exists, the employee should communicate what action(s) must be taken to prevent a violation.

b. Violation
   If the employee observes a violation, the alleged violator will be served written notice specifying:

   i. Each law, rule or regulation alleged to be violated;
   ii. The facts alleged to constitute each violation; and
   iii. Any corrective action order needed.

The notice may be in the form of a Warning Notice, a letter, or a Notice of Violation form and will offer an opportunity to meet with the authority prior to enforcement action. The Notice may contain a Corrective Action Order and must be served 30 days prior to any enforcement action.

2. First Violation

For minor violations, a civil penalty is not issued for a first violation. A first violation means the alleged violator has not caused or allowed a same or similar violation within the past three years. A Civil Penalty may be issued for a first violation, if the violator gained a demonstrable economic benefit or if the violation has the probability of: placing a person in danger of death or bodily harm; causing more than minor environmental harm; or causing physical damage to the property of another in an amount exceeding one thousand dollars.

3. Subsequent Violations

If another violation (same or similar within a three year period), caused or allowed by the same company or person, is observed, a Notice of Violation form will be served upon the alleged violator.

The Notice of Violation will be followed by a Civil Penalty. The civil penalty will be determined by completing a civil penalty worksheet. A portion of the penalty may be deferred, pending future compliance with the regulations and any Corrective Action Order.

4. Civil Penalty

This policy provides a model which is used to calculate Civil Penalties to include components for gravity, economic benefit of noncompliance, and any extraordinary staff costs resulting from an enforcement action. The policy also provides background, defines more clearly when an economic benefit penalty will be assessed, and included a trial period to test this change in the way our agency determines fines and penalties.

a. Background
Yakima Regional Clean Air Authority traditionally assessed very low penalties in fear of being characterized as unnecessarily punitive. An unintentional consequence of assessing low penalties was that many individuals and businesses found it economically beneficial to not comply with Agency regulations. Illegal open burning and uncontrolled dust penalties, for instance, when assessed, were often mere fractions of the cost for proper disposal of material or effective dust control.

Our regulation provided for escalation of penalties for repeat offenders which, too often did not equal the cost of compliance. Unfortunately, most citizens and businesses who did not comply with regulations, accrued an economic benefit. There existed an uneven regulatory "playing field" between those who did and those who did not comply, even after agency penalties for non-compliance were assessed.

b. Use of Penalty Worksheets to Include an Economic Benefit Component
The Civil Penalty Worksheet (Exhibit 1) shows how the Benefit Component is incorporated into penalty assessments. Sections I and II of the worksheet had been traditionally used for all penalties. Section III of the worksheet, Benefit Component Penalty, will be used to calculate economic benefit gained by the violator. Specific benefit may be determined by the USEPA BEN Model or by calculating actual costs when demonstrable.

First time violations with minor consequences or violations with minor or no demonstrable benefit will not be assessed the Economic Benefit Component Penalty.

c. Trial Period
Staff recommended a trial period of six (6) months. The Control Officer carefully monitored the assessments of penalties based on economic benefits accrued in the act of violating an agency regulation for the six month period ending September 30, 1997. A report was provided in October, 1997 with specific recommendations to the Board of Directors for formal adoption and incorporation into the agency regulations. The recommendation was approved.

YRCAA GENERAL CIVIL PENALTY WORKSHEET

Source _____ **NOP No.** _____

The following procedure shall be followed in the assessment of civil penalties for violations of YRCAA regulations or permits, except asbestos, industrial facilities, or outdoor burning. Guidance for answering the questions in Section I is on Page 2 of this work sheet. Civil penalties shall be determined by adding the dollar amounts from Sections I, II, III and IV. Suspended penalties for previous same or similar violations may also be reassessed.

Section I: Gravity Criteria

		No (0)	Possibly (1)	Probably(2)	Definitely (3)
1.	Did the violation result in air pollution?	____	____	____	____
2.	Was it a willful or knowing violation?	____	____	____	____
3.	Was the violator unresponsive in correcting the violation?	____	____	____	____
4.	Did the violator have a history of same or similar violations?	____	____	____	____
5.	Did the violator benefit economically from the violation?	____	____	____	____

Total Gravity Criteria Rating ____

6. Gravity Component Penalty

Rating	1-4	5-6	7-8	9-10	11	12	13	14	15	16	17+
Penalty:	up to $1,000	$2,000	$3,000	$4,000	$5,000	$6,000	$7,000	$8,000	$9,000	$10,000	$12,000

Section II: Benefit Component

If the answer to #5 in Section I is "Definitely", the estimated dollar amount of economic benefit determined by the EPA BEN computer model or an equivalent method is: $_____ (attach calculations).

Section III: Staff Cost Component

YRCAA administrative cost for investigation, notification and processing this action: $_____ (attach calculations).

Section IV: Procedural Violations

1. Failure to register or report accurate or complete information: 3 times registration amount $ _____
2. Failure to file New Source Review Application: 3 times filing fee $ _____
3. Failure to comply with a permit condition or order:($500) $ _____
4. Other procedural violation: ($500) $ _____

Total $ _____

Evaluator _____ Date _____

Approved By _____ Date _____

	Civil Penalty Amount
Section I	$ _____
Section II	$ _____
Section III	$ _____
Section IV	$ _____
Amt. Suspended from previous violation	$ _____
Total Penalty	$ _____

GENERAL CIVIL PENALTY GRAVITY CRITERIA

1. Did the violation result in a public health risk or property damage?

Answer "no" if the violation was not the result of an emission. Answer "possibly" if there was an emission that was not verified. Answer "probably" if the emission was verified. Answer "definitely" if the emission was verified and it was the direct cause of an adverse health effect or damage to property.

2. Was it a willful or knowing violation?

Answer "no" if the violator obviously did not know that the action or inaction constituted a violation. Answer "possibly" if the violator should have known. Answer "probably" if it is likely the violator knew. Answer "definitely" if the violator clearly knew.

3. Was the violator unresponsive in correcting the violation?

Answer "no" if the violation was corrected as soon as the violator learned of it. Answer "possibly" if the violation was corrected in a less timely and cooperative fashion. Answer "probably" if the violator attempted to correct the problem, but did not correct the problem. Answer "definitely" if the violator did not attempt to correct the problem.

4. Did the violator have a history of same or similar violation?

Answer "no" if the violation did not occur previously. Answer "possibly" if the violation may have occurred before, but has not previously been cited. Answer "probably" if the violation occurred before, but has not previously been cited. Answer "definitely" if the violation had previously been cited.

5. Did the violator benefit economically from the violation?

Answer "no" if the violator clearly did not gain any economic benefit. Answer "possibly" if the violator may have benefited. Answer "probably" if the violator benefited, but the benefit is not quantifiable. Answer "definitely" if the economic benefit to the violator is quantifiable.

III. CHEMICAL DUST SUPPRESSANTS

INTRODUCTION

Chemical dust suppressants are commercially available for use on most types of emission sources. Keep in mind that most of the products designed for trafficked areas are primarily intended for moderately, low cost roads, typically surfaced with gravel. Dust suppression and periodic road maintenance are normally combined. The performance of any dust suppressant is directly related to many factors. These include:

- application method and rate
- road surface moisture content during application
- hydrological conditions, like site precipitation and drainage
- mechanical condition of the road surface aggregate
- percent of fines in the road surface aggregate
- properties of the road base and sub-grade

Don't expect a chemical suppressant to compensate for deficiencies in road design, material composition, local site or climatic factors.

For unpaved road applications, products designed for the admix method usually work better than if simply surface applied. Table 1 on Page R-10 lists the common dust suppressant product types and their attributes. Vendors can provide detailed product-specific information. A listing of dust suppressant product vendors is available from the Department of Ecology's Hazardous Waste and Toxic Reduction Program.

PRODUCT PERFORMANCE

The literature on dust suppressants includes a number of comparative studies of dust control products; consult these references for detailed product comparisons. A number of them, marked with a "c", appear in the ***References*** section on page 15. Several of the references also contain detailed information on application methods, performance-related measurement techniques, comparative costs and related road engineering topics. These references are recommended for further reading, and are marked with a "*".

Results of comparative studies indicate that, for unpaved road sites, the most consistently effective suppressant products the lignin sulfonate and calcium and magnesium chloride types. In Washington State, sixty road managers working in various governmental and private jurisdictions reported using:

- lignin sulfonate products (41 percent)
- magnesium chloride products (8 percent)
- water (33 percent)
- emulsified asphalt products (8 percent)
- petroleum oil products (4 percent)
- calcium chloride products (4 percent)
- other products(2 percent)

HUMAN HEALTH and ENVIRONMENTAL IMPACTS

Only a few studies have evaluated the human health and environmental impacts of chemical dust suppressants. Any suppressant product or its ingredients may migrate from a treated site due to carelessness in application, runoff, leaching, volatility, dusting or adhesion to vehicles.

The risk to human health and the environment from chemical dust suppression depends on many factors, including the hazardous characteristics of product ingredients, application practices and the environmental characteristics of the site. In areas where surface water or groundwater is nearby and where stream flows are very low, adverse environmental impacts are possible.

During preparation or application, chemical dust suppressants may exhibit hazardous characteristics such as corrosiveness or ignitability. Some products may produce heat when mixed with water. Others may contain toxic or carcinogenic ingredients. Be sure to carefully review the product literature, Material Safety Data Sheet and the manufacture's instructions before purchase and prior to use. Observe all safety precautions and follow manufacturer's directions when handling, mixing and applying chemical suppressants.

A number of studies (Ref; 2, p. R-12) have looked at the effects of road deicing salts. Calcium Chloride, magnesium chloride and sodium chloride are commonly used for both deicing and dust suppression. When applied to roads and streets, these salts can potentially contribute substantial amounts of the chloride ion to groundwater, surface water and nearby soils. Deicing salt impacts to roadside and nearby vegetation and groundwater (including wells) have been reported. (Ref: 2, p. R-12)

The YRCAA or the Department of Ecology do not approve, recommend or endorse specific products or service providers. However, we can help you in evaluating the environmental safety of specific products. Contact the YRCAA or the Department of Ecology Hazardous Waste and Toxics Reductions Program for assistance.

TABLE 1 - CHEMICAL DUST SUPPRESSANTS

Types and Brand Names	Source	Functional Mechanism	Performance Advantages	Performance Limitations	Environmental Considerations
Freshwater	Surface or ground- water sources (need Water Right permit).	Wets particles, increasing their mass & binding them together.	Usually readily available, low cost, easy to apply.	Frequent applications needed during hot, dry weather, potentially labor intensive. Over-application can cause loss of traction, erosion.	Minimal hazard, if applied excessively, may result in erosion, sediment runoff. Limited supply in some areas.
Seawater	Puget Sound Pacific Ocean	Moisture stabilizes fines. Contains water retaining chemicals.	Low cost. Performs somewhat better than fresh water. Need for re-application less than fresh water.	Only available in coastal areas. Over application can cause loss of traction, erosion. Corrosive.	Repeated applications & long-term use may harm adjacent & nearby vegetation.
Calcium Chloride (Generically available as flakes or pellets)	By-product of ammonia-soda process. Also produced from natural salt brine.	Attracts & retains moisture at 29% or greater relative humidity (77F)	Reduces evaporation rate 3.4 times, lowers freezing point to -60F (30% solution) reducing freeze-thaw, increases compacted density of materials, effective after reblading.	Effectiveness limited in low relative humidity, corrosive to aluminum & steel, leaches during heavy precipitation, Releases heat when mixed with water.	Repeated applications & long-term use may harm adjacent & nearby vegetation.(See separate vendor listing for product specific info)
Magnesium Chloride -DustGard -Dust-Off	Produced from natural salt brine, by-product of potash production, produced from the reaction of magnesium hydroxide & hydrochloric acid.	Attracts & retains moisture at 32% or greater relative humidity (77F)	Reduces evaporation rate 3.1 times, lowers freezing point to -27F (22% solution) reducing freeze-thaw, increases compacted density of materials, effective after reblading.	Effectiveness limited in low relative humidity, corrosive to steel, leaches during heavy precipitation.	Repeated applications & long-term use may harm adjacent & nearby vegetation.(See separate vendor listing for product specific info)
Lignin Derivatives -Dustac -Road Binder	By-product of paper industry, containing lignin & carbohydrates. Specific composition depends on chemicals & processes used to extract cellulose.	Acts as adhesive, binding soil particles together.	Greatly increases dry strength of soil, not humidity dependent, adds plasticity to surfaces, lowers freezing point surface & base, effective after reblading.	Leaches during heavy precipitation, corrosive to aluminum, Proper aggregate mix import-ant to performance, slippery wet, brittle dry.	High biological oxygen demand in aquatic systems, Spills or runoff may cause fish kills or high ground- water concentrations of iron, sulfur com-pounds or other pollutants. (See separate vendor listing for pro- duct specific info)
Tree Resin Emulsions -Road Oyl -Enduraseal 200 (ENTAC) -Dustbinder -DustControl E (RESTAC) -Dustrol EX (J-30EX)	Emulsions produced from pine tree resins.	Acts as adhesive, binding soil particles together.	Low solubility after curing minimizes leaching & provides waterproofing, adds plasticity to surfaces, high bonding strength, non-corrosive.	Require proper weather & time to cure, not effective after reblading, requires prompt clean-up of equipment.	(See vendor for product specific info)

Types and Brand Names	Source	Functional Mechanism	Performance Advantages	Performance Limitations	Environmental Considerations
Synthetic Polymer Emulsions -Soil Sement, Soil Seal -Top Seal (Dust Seal) -ECO-CF (Sand Glue) -Soil Master WR-RSB -Aerospray 70A -Marloc	Composed of polyvinyl acetates, vinyl acrylic copolymers, copolymer, methacrylates, polybutadiene, et. al.	Bind soil particles together by forming a polymerizing matrix, function similar to adhesives.	Applicable to a range of emission sources, function well in sandy soils, some types allow seeded vegetation to grow through the polymer matrix.	Require proper weather & time to cure, not effective after reblading, may be subject to UV (sunlight) degradation, equipment requires prompt cleaning.	(See vendor for product specific info)
Bituments, Tars and Resins -Residual Fuel Oil -Technical White Oils -Fuel Oils #4, #5, #6 -Coherex, Asphotac -DL-10,CSS-1,CMS-2S -Arcadia oil, PEP -Pennsuppress D	Petroleum coal & plastics industry by-products.	Asphalt & resinous products are adhesive, binding soil particles together. Petroleum products coat soil particles, increasing their mass.	Water insoluble when dry, provide surface waterproofing, good residual effectiveness.	Surface crusting, fracturing & potholing may develop, long-term use may cause road to become too hard to blade, won't lower freezing point, petroleum products lack adhesive characteristics.	(See vendor for product specific info)
Geotextiles	Manufactured polypropylene & polyethylene fabrics.	Provide & maintain drainage, improve load supporting properties, prevent upward migration of fines, separate road layer materials.	Flexible, durable, water permeable & soil chemical resistant, reduces amount of aggregate required in initial construction, lower maintenance costs.	High material cost, material degrades in sunlight, if exposed.	None.

TABLE REFERENCES

***** = Recommended for further reading
c = Comparative study

1*. UMA Engineering Ltd. Engineers, Planners and Surveyors, *Guidelines for Cost Effective Use and Application of Dust Palliatives,* Roads and Transportation Association of Canada (RTAC), 1987.

2*****. Addo, Jonathan Q. and Sanders, Thomas G., *Effectiveness and Environmental Impact of Road Dust Suppressants,* MPC Report No. 95-28 A, Department of Civil Engineering, Colorado State University, Ft. Collins CO, March 1995.

3c. Monlux, Stephen, *Dust Abatement Product Comparisons in Region One,* USDA Forest Service, February 17, 1993.

4c. Bolander, Peter, U.S. Forest Service, *A Guide to Liquid Spray Applications for Erosion Control, Dust Abatement and Tackifiers,* February 1996.

5*. Palmer, James T., Edgar, Thomas V. and Boresi, Arthur P., *Strength and Density Modification of Unpaved Road Soils Due to Chemical Additives,* MPC Report No. 95-39 University of Wyoming, Department of Civil and Architectural , Laramie, WY, January 1995 Engineering

6. Scholen, Douglas E., *Non-Standard Stabilizers,* FHWA-FLP-92-011, U.S. Department of Transportation, Federal Highway Administration, July 1992.

7c, Bolander, Peter, U.S. Forest Service, *Dust Abatement, Street Maintenance and Collection Systems Short School,* April 1995.

8. Cowherd, C., Muleski, G. E. and Kinsey, J. S., *Control of Open Fugitive Source*s, Midwest Research Institute, EPA Report No. 450/3-88-008, September 1988.

9c. Brown, Dr. Dan A. and Elton, Dr. David J., *Guidelines for Dust Control on Unsurfaced Roads in Alabama,* Alabama Highway Research Center, Harbert Engineering Center, Auburn University, Alabama, June 1994.

10. "Dust Control, Road Maintenance Costs Cut With Calcium Chloride", *Public Works,* Vol. 121. No. 6, (May 1990) pp.83-84.

11. Washington State Department of Ecology, *State Implementation Plan for Particulate Matter in the Spokane Study Area,* November 1991.

12c. Kirchner, Henry W., P. E., "Road Dust Suppressants Compared", *Public Works,* Vol. 119, No. 13 (December 1988), pp. 27-28

13. *Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures*, EPA Office of Air Quality, EPA-450/2-92-004, September 1992.

14c. Bolander, Peter, Draft (August 1996): "Chemical Additives for Dust Control - What We've Used and What We've Learned", USDA Forest Service, Portland, Oregon.

15*. Washington State Department of Ecology, *Techniques for Dust Prevention and Suppression*, Publication No. 96-433, January 1997.