



ERP DUST MITIGATION PLAN

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DEC 14 2017

KING COUNTY
D.P.E.R.

REGULATORY COMPLIANCE

The policies and procedures outlined by this plan/policy meet or exceed the following regulatory standards: Puget Sound Clean Air Agency (PSCAA) – Regulation I 9.18 Article 9 Emissions Standards part 9.16-9.18 EPA (Federal New Source Performance Standard NSPS) – 40 CFR 60 Subpart OOO 60.674 and 60.676

KING COUNTY CODE AND PERMIT CONDITIONS

Clearing and Grading Conditions

CG-36: *The permittee shall comply with Puget Sound Clean Air Agency (PSCAA) requirements for registration or permits, and copies of the permit or registration shall be kept onsite and available for department and public inspection. The permittee shall comply with all other PSCAA requirements, including, but not limited to, emission standards, control methods, best management practices, monitoring, and/or inspections. Monitoring data related to required PSCAA registration or permits shall be provided to DPER on the submittal dates (KCC 21.22.070.C.1 and KCC 21.22.070.C.2)*

CG-37: *Dust and smoke from processing operations at the site shall be controlled, such that there is no significant increase the existing levels of suspended particulates at the perimeter of the site, in compliance with KCC 21.22.070.C.3..*

Relevant King County Code

KCC 21A.22.070.C:

- 1. Dust and smoke produced by mineral extraction and materials processing operations shall be controlled by best management practices to comply with relevant regulations of the Puget Sound Clean Air Agency.*
- 2. Dust and smoke from process facilities shall be controlled in accordance with a valid operating permit from the Puget Sound Clean Air Agency. Copies of the permit shall be kept onsite and available for department and public inspection. Copies of the Puget Sound Clean Air Agency monitoring results shall be provided to the department on permit monitoring data submittal dates.*



3. Dust and smoke from process facilities shall not significantly increase the existing levels of suspended particulates at the perimeter of the site

POTENTIAL DUST SOURCES

Operating activities at the Raging River Quarry can be divided into four primary groups, and potential dust sources have been identified for each operating activity grouping.

Crushing and Material Processing

- Jaw Crusher
- Screening Plant
- Cone Crusher
- Transfer Points, Conveyors, and Discharges

Sales and Loading

- Truck Loading
- Haul Traffic
- Material Stockpiles

Drilling and Blasting

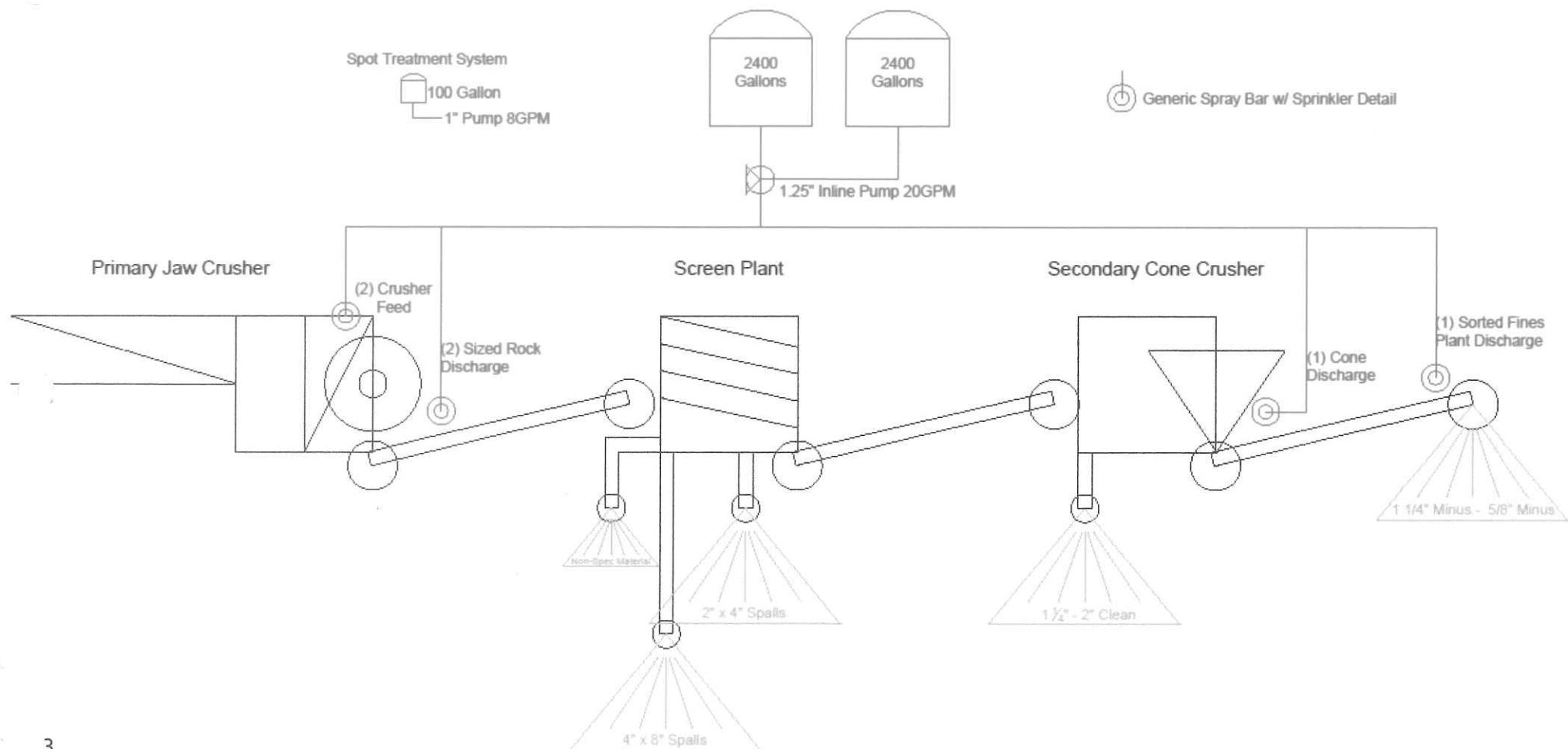
- Drilling Blast Holes
- Blasting

Material Excavation

- Stripping Overburden
- Bailing Blasted Material
- Rock Breaking with Hydraulic Hammer Attachment

Mitigation policies and best management practices are outlined by operational group for each potential dust source in the following sections. In the event that wind or weather conditions prohibit effective mitigation of dust from operations that could lead to the violation of grading permit conditions or King County Code, such operations will cease until such time as compliance can be reasonably expected.

PLANT SCHEMATIC WITH SUPPRESSION LOCATIONS



CRUSHING AND MATERIAL PROCESSING

Rock crushing equipment can create dust during dry weather conditions when feed material contains a low moisture content, and when a sufficient percentage of oversize material is put through the primary and secondary crushing cycles. Dust created from the primary and secondary crushers cannot exceed an air opacity measurement of 12% per EPA and PSCAA guidelines, and for any other process component the air opacity measurement cannot exceed 7%. Eastside Rock Products performed an initial performance test in October of 2016 to establish compliance with all PSCAA standards for processing equipment under normal operating conditions. In addition to the initial performance test, Eastside Rock Products documents and completes monthly periodic inspections of its dust control equipment and processes. These documented inspections are available to the PSCAA, and EPA upon request. The primary suppression system used to treat all identified dust sources consists of two 2,400 gallon tanks tied in parallel to a 1.25" inline pump rated at 20GPM. The pump and tank system feeds a series of spray bars and suppression heads at critical dust generation points including at the jaw crusher, the jaw crusher discharge belt, the cone crusher, and the cone crusher discharge belts. The water used in this system is clean, potable water provided by a third-party contractor. Potential dust sources and the corresponding mitigation and prevention procedures are outlined below:

Jaw Crusher/ Feeder Plant

Water spray bars located at the discharge of both the feeder and jaw crusher are used in conjunction to reduce fugitive dust creation from the primary crushing process. Tarping is used to further contain dust generated in the jaw crushing chamber.

Screening Plant

Covered structures help prevent fugitive dust from escaping. Water introduced to the process from the jaw and feeder keep the material moist and prevents dust creation.

Cone Crusher

Covered structures help prevent fugitive dust from escaping. Water introduced to the process from the jaw and feeder keep the material moist and prevents dust creation. Additional water spray bars located at the discharge from the cone crusher reduce dust created from the secondary crushing process.

Transfer Points, Conveyors and Discharges

Transfer points are designed to reduce material fall during transport. During dry periods, additional spray bars are utilized on product belts generating crushed fines to reduce dust generated as products are piled.



Additional Potential Mitigation Strategies

- Adding more Spray Bars
- Increasing water flow from existing spray bars
- Adding additional tarping
- Installing vacuum based dust collection system on jaw and cone crusher

SALES AND LOADING

Loading and handling of aggregates containing fines that have been exposed to dry weather over an extended period of time can produce fugitive dust. The movement of customer traffic on dry roads during periods of light to moderate wind, can also create fugitive dust. Potential dust sources and the corresponding mitigation and prevention procedures are outlined below:

Truck Loading

Loading of trucks with products containing fines will be done slowly when materials are dry, and will be loaded directly from moistened product piles being generated at the cone crusher when production is occurring. When loading products containing fines from stockpiles, stockpiles will be wetted down during dry periods. Customer trucks will be asked to use canopy and bed covers to prevent dust creation when hauling materials offsite.

Haul Traffic

When road surface conditions are dry, road surfaces are wetted down by both contracted water providers and quarry personnel to prevent dust generation by hauling traffic. Trucks are not allowed to exceed a travel speed of 10mph within the quarry and this speed is further reduced if quarry personnel observe that hauling speed is contributing to excess dust generation.

Material Stockpiles

Stockpiles of material that have lost moisture content over time can create fugitive dust during periods of high winds. The primary stockpile area at the Raging River Quarry has been set in a depression to minimize wind exposure, and product stockpiles are refreshed regularly to bring moisture to the surface of the piles. During dry periods, product stockpiles are wetted down by both contracted water providers and quarry personnel

Additional Potential Mitigation Strategies

- Pave haul roads or apply dust suppressant such as Recycled Asphalt Pavement
- Install sprinkler system around haul roads and stockpiles

DRILLING AND BLASTING

Drilling and Blasting activities can, under certain conditions, create fugitive dust. Eastside Rock Products does not currently perform Drilling and Blasting operations in-house, and instead hires third party subcontractors. Potential dust sources and the corresponding mitigation and prevention procedures are outlined below:

Drilling

Eastside Rock Products requires drilling contractors to use drilling equipment equipped with dust collection/suppression systems, which must be operational at all times during active drilling. Rock drills are typically equipped with a vacuum based dust collection system.

Blasting

ERP works in concert with its subcontracted blasters to design shot patterns that minimize the creation of particles sized less than 4" in diameter, which minimizes the production of fines and thereby dust. This includes spacing holes more than eight feet apart, and minimizing powder factors. When prepping the blast area, all excess loose debris is removed. ERP ensures that the surface of the blast area is wetted down prior to blasting, including a direct water application prior to blasting in the case of dry weather. ERP will avoid blasting during periods of high wind or when wind directions and wind speeds would pose a substantial risk of meaningfully increasing dust levels at neighboring property lines.

Additional Potential Mitigation Strategies

- Limit Blast size
- Reduce distance material travels during Blast

MATERIAL EXCAVATION

In dry weather conditions, Material Excavation within the quarry can produce fugitive dust. At the planning stage, Eastside Rock Products greatly reduces the opportunity for dust creation in this process by first reducing the number of times material is handled. This is accomplished primarily through effective bench design that reduces dust from falling material, and a compact quarry layout that minimizes the distance material must be conveyed from the point of excavation to the processing facility. Eastside Rock Products also maintains a 100 gallon portable water tank with a 1" pump rated at 8GPM onsite at all times for direct water application. Potential dust sources and the corresponding mitigation and prevention procedures are outlined below:

Stripping of Overburden

Stripping activities within the quarry are typically fairly limited due to shallow overburden conditions (0 – 5



feet) and underlying rock depths of 200+ feet. Stripping is typically conducted when there is sufficient moisture content in the soil to prevent dust. If stripping is being conducted during dry periods, direct water application will be used to prevent dust.

Bailing Blasted Material

Bailing blasted material down to the quarry floor has the potential to create fugitive dust under very dry conditions. During periods of dry weather that could lead to excess dust production, blasted materials are separated while being dug out to segregate coarser material that does not generate meaningful dust when being bailed to the quarry floor (4" in diameter and greater) from finer material (anything less than 4" in diameter). Finer material is set aside in piles to be bailed after precipitation occurs naturally or until water is applied directly to the piles. During periods of dry weather, the pace of digging and bailing is moderated to allow additional time for any dust to settle and disperse. Direct water applications are also used to wet down areas containing material with fines that are likely to be disturbed during the bailing process.

Rock Breaking with Hydraulic Hammer Attachment

Eastside Rock Products works with its subcontracted blasters to incorporate shot designs that minimize large rocks that necessitate using the hydraulic hammer, as rock breaking with the hydraulic hammer can create fugitive dust during periods of very dry weather. Typically during periods of dry weather, large rocks are set aside to be broken until precipitation occurs naturally. When conditions are very dry and the volume of large rocks requires use of the rock breaker, the pace of rock breaking is slowed to allow any dust to settle and disperse. Direct water application to rocks is also used to moisten the surface of rocks in very dry conditions.

Additional Potential Mitigation Strategies

- Adding portable sprinkler systems for increased water volume
- Relocate crushing plant to upper benches to reduce material conveyance distance

CONTINUOUS MONITORING

Eastside Rock Products is committed to maintaining its dust control systems. A redundant monitoring system will be used to continuously evaluate the effectiveness and condition of the sites dust suppression equipment. First, daily evaluations will be made by the site supervisor during routine production inspections. Second, as part of regularly scheduled equipment inspections by the crew, dust suppression equipment will be examined on a weekly basis by a qualified person. Additionally, a monthly record of inspection by the site manager will be made and kept documented for a period of no less than two years for the evaluation of PSCAA and EPA staff upon request.