Dust Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006

April 2021

Dust Control Plan

Mountain Ash Limited Partnership

Rocky View County, Alberta

SLR Project No: 212.06650.00006

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This document has been prepared by SLR Canada. The material and data in this report were prepared under the supervision and direction of the undersigned.

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Distribution: 1 copy (PDF) – Mountain Ash Limited Partnership
1 copy - SLR Consulting (Canada) Ltd.

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1.0 INTRODUCTION

Mountain Ash Limited Partnership (Mountain Ash) is planning to develop the Summit Pit (the Project) along Highway 567 within NW and SW 31-026-03 W5M, northeast of the Town of Cochrane, in Rocky View County (RVC), Alberta (Figure 1). The Project will encompass approximately 208 acres (84 ha) excluding existing road rights-of-way. Mountain Ash is applying for Phase 1 of a six-phase mining plan. This land is currently owned by 1410266 Alberta Ltd. (a general partner of Mountain Ash). Summit Pit received land use and a master site development plan (MSDP) approval on March 2, 2021 (Land Use Bylaw C-8051-2020).

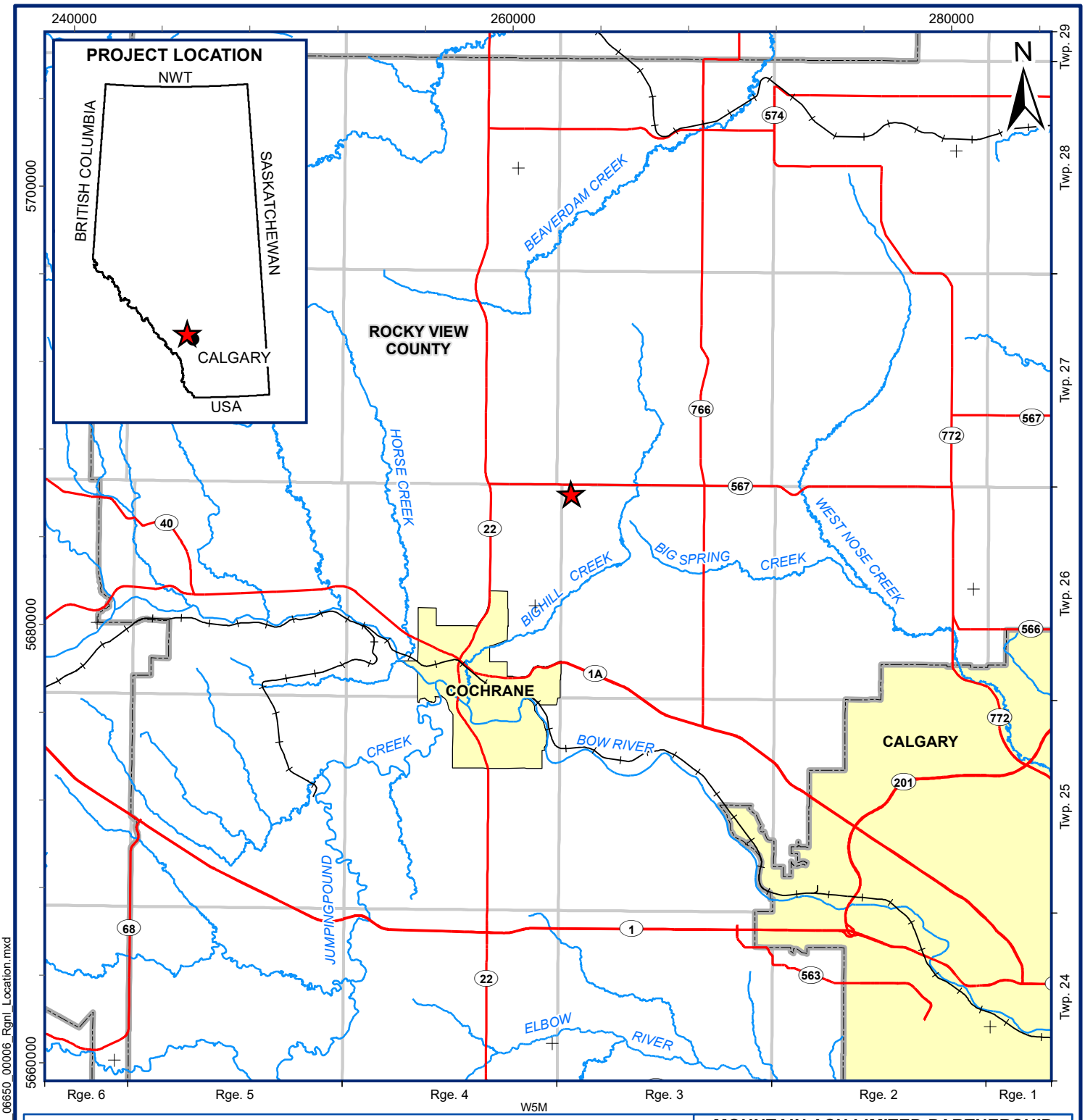
An air quality assessment was undertaken as part of the MSDP application to assess the potential fugitive air emissions generated from the Project operations in relation to adjacent receptors. The primary air emission associated with the Summit Pit operations is anticipated to be particulate matter (e.g., $PM_{2.5}$ and TSP) released in the form of fugitive dust. Sources of fugitive dust can include traffic from on-site haul routes, aggregate processing, recycling, and handling, and natural releases occurring from exposed stockpiles and gravel faces. As a requirement for the Code of Practice (COP) for Pits and Development Permit (DP) applications, this report details the Dust Control Plan (DCP) in relation to the operation of the Summit Pit. The objectives of the DCP are:

- Provide an overview of the operations at the Summit Pit; identify potential sources of fugitive emissions; outline maintenance and inspection procedures.
- Provide a summary of control measures that are or shall be implemented; provide an implementation schedule for the control measures.
- Illustrate how on-going compliance is ensured through the use of a monitoring and record keeping program (i.e., the Ambient Air Quality Monitoring Plan).
- Detail the employee training program for fugitive dust control procedures.

Once implemented, the DCP will serve to minimize dust emissions from the Summit Pit, thereby minimizing or eliminating impacts to nearby receptors and the general local environment.

The Site Manager shall be responsible for ensuring that the control measures identified in this plan are implemented. To limit the transfer of dust to surrounding receptors, an operator must take all reasonable actions to ensure that fugitive dust emissions are minimized using best management practices associated with the industry and any regulatory approvals.

Although several pits have been proposed for the area, no additional pits have been approved with a development permit that have the potential to add to the dust contributions from Summit Pit operations at adjacent receptors. There is an agreement between future operators to ensure that a cumulative impacts mitigation management agreement is in place to minimize the dust from their respective operations with respect to cumulative effects. Mountain Ash will participate with those operations to address cumulative effects/impacts in the area prior to submitting future development permit applications.



LEGEND

- PROJECT LOCATION
- HIGHWAY
- RAILWAY
- WATERCOURSE
- COUNTY BOUNDARY
- URBAN

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.
Basedata:AltaLIS Government of Alberta under the Alberta Open Data License.

5 0 5
SCALE: 1:250,000 KILOMETRES
WHEN PLOTTED CORRECTLY AT 8-1/2 x11
NAD 1983 UTM Zone 12N

MOUNTAIN ASH LIMITED PARTNERSHIP
SUMMIT PIT
NW & SW 31-26-03 W5M
ROCKY VIEW COUNTY, ALBERTA

DUST CONTROL PLAN

SUMMIT PIT LOCATION

April 8, 2021

Project No. 212.06650.00006

Figure No. **1**

[redacted]

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2.0 SOURCES OF FUGITIVE DUST

Chapter 11 of the US EPA AP-42 document characterizes fugitive dust from stone crushing and aggregate handling as three forms of particulate matter: TSP, PM_{10} and $PM_{2.5}$. TSP is representative of total suspended particulate matter. PM_{10} and $PM_{2.5}$ is the respirable fraction of particulate matter.

2.1 Overview of Pit Operations

The primary operations at the Summit Pit will consist of aggregate extraction, crushing, screening and/or washing, stockpiling and off-site shipping.

2.1.1 Aggregate Extraction

Extraction will take place from Phase 1 to 6. Excavation will occur by stripping the deposit with a scraper, dozer, grader or excavator. There will be no blasting on the site.

2.1.2 Aggregate Processing and Recycling

Aggregate processing and recycling can include crushing, screening and conveyor transferring to drop points. Crushing plants can consist of primary and secondary crushers and screening plants can consist of primary and secondary screeners. Ground dust will be controlled via watering the area around the aggregate processing and loading site. Water is supplied through third party vendors and does not require a license.

2.1.3 Conveyor Drop

A total of four conveyors are considered in operation. Stack Conveyors 1-3, or more depending on the phase of operations, transfer aggregate from crushers to stockpiles, typically the fourth is a telescopic stacker to stockpile. The drop height is set to a minimum of 0.5 m to reduce dust emissions.

2.1.4 Loading and Unloading

Mountain Ash will sell aggregate from the Summit Pit throughout the year; however, most sales will likely be focused over the spring, summer, and early fall period. During this activity, aggregate will be loaded from the stockpiles onto trucks and transported offsite. Aggregate sales may overlap with overburden removal and mining/crushing activities.

2.1.5 Shipping

Trucks are weighed at the scale house before leaving the Summit Pit. There is one entrance to the Summit Pit which is paved and is located off Range Road 40. The internal haul road from the entrance will be unpaved with dust suppression applied on the remainder of the internal routes.

2.2 Inventory of Fugitive Dust Sources

The operations within the Summit Pit, and the associated potential sources of fugitive dust emissions, consist of the following:

- site preparation
    - topsoil stripping and berm construction

  - traffic on unpaved roads
- crushing, screening and washing plants
  - loading/unloading of aggregates
  - traffic on unpaved roads
  - conveyor transfers
- other general site-wide sources of fugitive emissions:
  - traffic on paved and unpaved haul roads from shipping and general site activities
  - wind erosion of active and inactive stockpiles
  - loading/unloading of aggregates from general site activities

Road dust is one of the major emission source groups from the Project. It includes road dust emissions from moving vehicles on paved and unpaved roads, haul-trucks and water trucks on unpaved roads and trucks for calcium chloride applications on unpaved roads, etc. Road dust also includes emissions from off-road equipment and machines performing on-site activities, such as crushing, stripping, bull dozing and grading for remediation, backfilling, stockpiling, etc.

3.0 MEASURES TO CONTROL OR MINIMIZE FUGITIVE DUST

3.1 Aggregate Crushing and Screening

- The crushers will not be within 190 m of the east site boundary and 140 m from all other boundaries.
- Where the site foreman deems necessary, the processing plants shall be equipped with a water spray system. The actual water application rate shall vary, being adjusted as needed to reduce visible dust emission.
- Water for the spray system will be provided from a third-party water supplier.
- The spray-bars will be triggered whenever the site foreman or scale operator observes visible dust emissions.
- Where possible, the height of lifts and discharge distances to the top of the stockpile will be kept to a minimum.
- Conveyor drop heights shall be minimized to the extent possible to reduce spillage and provide windbreak. Conveyors on site should be equipped with rubber shrouds to minimize drop height for dust control.
- Conveyor belts shall be cleaned periodically to remove entrained material.
- During extreme windy conditions, the Operator will suspend operations until emissions can visibly be controlled.

3.2 Truck Loading and Transportation

Truck loading will be suspended if the site foreman or scale operator observes the material to be dry and dusty and the wind is sufficient to cause wide-spread visible emissions with plumes directed towards receptors.

The highest point of the material loaded into a truck shall not exceed the vehicles tray walls unless it is covered.

3.3 Unpaved Roads

The internal haul routes at the Summit Pit beyond the paved route are unpaved. The following measures shall be used to control and minimize fugitive dust from the internal unpaved roads:

- A truck or trailer-mounted tank will be located on site at all times and shall be equipped with a spray bar to deliver dust suppressor evenly over the haul route surface.
- Dust suppressant supply (Calcium Chloride, $CaCl_2$) shall be available to allow the tanker truck to fill and apply the full payload each hour, if necessary, during dry conditions.
- The actual application rate shall vary, depending on surface moisture conditions and traffic conditions, and shall be triggered whenever the site foreman or scale operator observes trucks producing a trailing cloud of dust greater than 1/3 of a trailer length.
- Haul routes shall be maintained (i.e., graded) approximately monthly during April to October, to ensure that loose fine material on the haul route surface is minimized.
- Trucks and other mobile equipment shall reduce speed as necessarily to reduce trailing dust clouds. The maximum speed will be 35 km/hr.
- The internal roads shall be clearly delineated to limit traffic to the established haul roads that have been maintained. Limiting the trucks away from unmaintained areas of the site is intended to minimize disturbance of unmaintained areas.
- To prevent spillage and air entrainment during transport of aggregates, the trucks carrying aggregate loads shall be covered during transport on the paved and unpaved roads.
- Disturbed areas of unpaved roads shall be stabilized to the extent possible with rollers or other similar equipment.

3.4 Paved Roads and Entrance Ways

The following measures shall be used to control and minimize fugitive dust from the paved Range Road 40:

- The Summit Pit will have one point of entry/exit, which will be paved and well-maintained during operations. The entry/exit point is on Range Road 40.
- The Summit Pit shall have the capability to spray water or other approved dust suppressants as deemed necessary by the site foreman on paved surfaces, as well as roads near the site entrance as needed.
- The actual application rate shall vary, depending on surface moisture conditions and traffic levels, and shall be triggered whenever the scale operator or site foreman observes trailers producing a trailing cloud of dust greater than 1/3 of a trailer length.
- To prevent spillage and air entrainment during transport of aggregates, the aggregate loads shall be covered during transport on the internal unpaved roads.
- Any spillage or material deposited on the paved roads shall be removed promptly.
- Regular sweeping of the paved roads will be conducted as required, at the discretion of the site foreman, to ensure that visible loose fine material of the haul road surface is minimized.
- Trucks and other mobile equipment shall reduce speed as necessarily to reduce trailing dust clouds. The maximum speed will be 35 km/hr.

3.5 Wind Erosion of Exposed Stockpiles

- Extraction shall be reduced or suspended if the condition of the active extraction face is dry and dusty, and the wind is directed toward a receptor at a speed sufficient to cause widespread visible erosion of the open face.
- Water shall be applied to stockpile material that are dry and dusty when the wind is directed toward a receptor at a speed sufficient to cause widespread visible emissions.
- Stockpiles shall be maintained to avoid steep sides or faces.
- Disturbance of storage piles shall be minimized where feasible. For active stockpiles, the disturbed area shall be minimized to the extent possible.

3.6 Wind Erosion of Exposed Faces

Mountain Ash expects the overburden hauling and remediation area will be crusted or covered by vegetation or snow after overburden stripping and backfilling is complete. Crusting would occur if the area is not disturbed for a period of time, depending on aggregate soil types and moisture content. Any natural crusting of the surface binds the erodible material, thereby reducing the erosion potential (U.S. EPA 2006).

Extraction shall be suspended if the condition of the extraction face is dry and dusty, and the wind is sufficient to cause wide-spread visible erosion of the open face with plumes directed off-site.

Aggregate stockpiles will be located on the Summit Pit floor in close proximity to the extraction face or in the stockpile area.

Wind forecasts shall be monitored regularly for heavy winds during operations to anticipate theneed for these measures and allow for next day planning.

4.0 IMPLEMENTATION

4.1 Schedule

All control measures are to be in place prior to extraction commencing in the Summit Pit. Control measures shall remain in place so long as the Summit Pit remains in operation.

4.2 Implementation Plan

The following outlines how the DCP shall be implemented, including training of facility personnel:

- The DCP shall be kept on file at the scale house.
- Training on new and existing operating procedures shall be provided to relevant staff; refresher training shall be provided at a minimum of once every 2 years.
- The Summit Pit management shall communicate the DCP to responsible supervisors, who shall ensure staff are following operating procedures defined in the DCP.
- The site foreman shall be responsible for ensuring the DCP is followed; Management shall ensure DCP is reviewed annually.
- The staff shall follow the DCP procedures.

5.0 INSPECTION AND MAINTENANCE

5.1 Maintenance

The following outlines the details regarding the inspection and maintenance procedures that shall be employed at the site:

- The water spray system and the $CaCl_2$ application equipment for the processing plant will be inspected when in use.
- Haul routes shall be maintained on a regular basis as previously indicated in Section 3.3; and, haul routes shall be inspected daily, or more regularly as dictated by wind conditions and truck traffic. The haul routes shall be maintained on a regular basis, as previously indicated, based on the inspection, the wind conditions, and the truck traffic.
- Prior to the operation of the processing plants, the water spray systems and the $CaCl_2$ application equipment should be inspected, and pond water levels shall be inspected to ensure adequate water supply.

5.2 Identification of Problems

The site operator shall be informed of any issues that arise from inspections performed. Operations may be curtailed if dust control equipment is not adequately performing.

6.0 MONITORING AND RECORD KEEPING

Visual inspection for dusty conditions in areas of emission sources identified in the DCP shall occur at a minimum of twice daily during dry weather and once per day otherwise. Records shall be made each time the following events occur:

- dust suppressant is applied to unpaved haul routes and unpaved haul routes are maintained
- water sprays are used at the processing plant and other surfaces
- wet or vacuum-sweeper arrives and cleans paved surfaces; heavy dust plumes are observed
- a complaint is received

All records will be kept onsite in a logbook. A sample Complaint Record Report log form is provided in Appendix A.

In the event of a dust complaint, the complaint will be directed to the site foreman who will follow the protocols outlined in the Complaints Procedures document, which is kept on-site.

The Pit will enact an action plan concerning its operations in response to a complaint, as detailed in the following section.

7.0 RESPONSE TO COMPLAINTS

Complainants should identify the location of the incident as well as the time of day that it was detected and any other relevant information. All dust complaints shall be forwarded to the site foreman and recorded in the logbook as identified in the previous section.

The site foreman shall ensure the following actions:

- conduct a site survey to identify sources of visible dust contributing to the complaint
- create a record of this survey
- determine weather conditions (both current and at the time that the complaint was made)
- report on all on-site activities at the time the complaint was made

If the information collected from the survey procedures indicates the Summit Pit is not the source of the dust, the complainant shall be notified of this finding. Documentation supporting this response mechanism (site survey record and wind station readings at the time of the complaint) shall be provided to the complainant upon request. The site foreman or other Pit staff shall respond to all complaints within 24 hours with a phone call to the complainant.

If it is determined that the complaint is related to Summit Pit activities, the following response procedures shall be followed, in the order provided below.

Level 1 – Inspection and Correction of Operations

The Site Foreman shall ensure that all elements of the DCP are being followed. Control measures such as spraying or watering shall be increased or operations may be curtailed, as required.

Level 2 – Review of the DCP

If the Level 1 response does not adequately resolve the source of the dust complaint, the DCP shall be reviewed for additional control measures.

Level 3 – Operational modifications

If the Level 2 response does not adequately resolve the source of the dust complaint, the Mountain Ash shall commit to making physical changes to the facility to address the source of the dust emissions. Such changes may include, but are not limited to, additional enclosures, relocation of equipment, or additional paving.

8.0 CONCLUSIONS

This document presents a Best Management Practices DCP to control and minimize fugitive dust emissions from the Summit Pit operations. Mountain Ash will implement and abide by these measures contained in the plan. Record keeping, inspections and oversight will ensure an effective dust mitigation program throughout the lifespan of operations at the Summit Pit.

The DCP will serve to minimize all dust emissions from the Summit Pit, so that the risk to human health and the potential for offsite nuisance is minimized.

This DCP will be kept on-site at all times in the scale house for reference.

9.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR for Mountain Ash Limited Partnership., hereafter referred to as the “Client”. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. It is intended for the sole and exclusive use of the Client. Other than by the Client and as set out herein, copying or distribution of

this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of SLR.

This report has been prepared for specific application to this site and site conditions existing at the time work for the report was completed. Any conclusions or recommendations made in this report reflect SLR's professional opinion.

Information contained within this report may have been provided to SLR from third party sources. This information may not have been verified by a third party and/or updated since the date of issuance of the external report and cannot be warranted by SLR. SLR is entitled to rely on the accuracy and completeness of the information provided from third party sources and no obligation to update such information.

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of compliance with environmental laws, rules, regulations, or policies established by federal, provincial, or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions, and recommendations in this report may be necessary.

Appendix A

Complaint Record Report Log

Dust Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006

GENERAL INFORMATION - COMPLAINTANT

Source of Complaint: ☐ Residential or Other: _____
Name: ☐ Mr. ☐ Mrs. ☐ Ms. _____
Telephone No.: (____)_____(home/cell) (____)_____(work)
Email Address: _____
Home/Business Address: _____
City:_____Postal Code: _____

Other Comments: _____

COMPLAINT INFORMAION

Date (Month/Day/Year) :_____/_____/_____Time: From:_____AM / PM
To: _____AM / PM
Complaint Type: ☐ Dust ☐ Noise ☐Other : _____

Address or Nearest Cross Street of Observed Incident: _____

Description: _____

WEATHER CONDITIONS DURING TIME OF COMPLAINT

Wind Direction: (Blowing From) _____
Wind Speed: ☐ Calm ☐ Moderate ☐ Strong
Cloud Cover: ☐ Clear ☐ Partly Cloudy ☐ Overcast
Condition: ☐ Clear ☐ Fog ☐ Precipitation
Temperature: _____°C or ☐ Humid ☐ Dry

OPERATIONS DURING TIME OF COMPLAINT

Description of Operations (production activity & recorded events during/before complaint period) :

MITIGATION EFFORTS & COMPLAINT RESPONSE

Date of Response (Month/Day/Year) :_____/_____/ _____
Response Summary : ☐ Attached Copy of Written Response

Corrective Action Taken : _____

REPORT PREPARATION

Report Prepared by:
Contact: Phone (___) _____ Email _____
Date (Month/Day/Year): _____ /_____/ _____