

Statement of Basis

**Permit to Construct No. P-2016.0061
Project ID 61803**

**Sunroc Corporation 00161
Portable, Idaho**

Facility ID 777-00161

Final

November 16, 2016
Shawnee Chen, P.E. 
Senior Air Quality Engineer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

November 21, 1995

M E M O R A N D U M

TO: Orville D. Green, Assistant Administrator
Permits and Enforcement

FROM: Martin Bauer, Chief 
Construction Permit Bureau

SUBJECT: P-950223 Low's Ready Mix, Portable
(Portable Rock Crusher, General Permit)

PROJECT DESCRIPTION

Low's Ready Mix (Low) is proposing to operate a portable rock crushing facility. Low is requesting a Permit to Construct be issued to cover the operations of the rock crushing facility in both attainment and non-attainment areas throughout the state of Idaho. The two hundred fifty ton per hour (250 T/hr) crushing facility is currently located in Eagle Idaho, and has been in operation at the current site since 1991. This facility qualifies for a general rock crusher Permit to Construct.

DISCUSSION

On October 11, 1995, DEQ received a Permit to Construct application for a portable rock crushing facility on behalf of Low's Ready Mix from Geodysey Geological Consultants. The application was determined complete on October 27, 1995.

Fees

The facility is not major as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees in accordance with IDAPA 16.01.01.526 are not applicable.

RECOMMENDATION

Based on review of application materials, and state and federal rules and regulations, staff recommend that Low's Ready Mix be issued a Permit to Construct for the portable rock crushing facility. No public comment period is recommended, no entity has requested a comment period and the project does not involve PSD Permit to Construct requirements.

DS/DCF:LOWS/LOWS.MH

cc: R. Wilkosz, TSB	P. Rayne, AFS	NIRO	NCIRO
SWIRO	SCIRO	SEIRO	EIRO
Source File	COF		

November 21, 1995

M E M O R A N D U M

TO: Martin Bauer, Chief
Construction Permits Bureau

FROM: Dan Salgado, Air Quality Engineer
Construction Permits Bureau

SUBJECT: *Permit to Construct Technical Analysis*
P-950223 Low's Ready Mix, Portable
(Portable Rock Crusher, General Permit)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01.200 (Rules for the Control of Air Pollution in Idaho) for issuing Permits to Construct.

PROJECT DESCRIPTION

Low's Ready Mix (Low) is proposing to operate a portable rock crushing facility. Low is requesting a Permit to Construct be issued to cover the operations of the rock crushing facility in both attainment and non-attainment areas throughout the state of Idaho. The two hundred fifty ton per hour (250 T/hr) crushing facility is currently located in Eagle Idaho, and has been in operation at the current site since 1991. This facility qualifies for a general rock crusher Permit to Construct.

SUMMARY OF EVENTS

On October 11, 1995, DEQ received a Permit to Construct application for a portable rock crushing facility on behalf of Low's Ready Mix from Geodyssey Geological Consultants. The application was determined complete on October 27, 1995.

DISCUSSION

1. Process Description

Water saturated pit run gravel is mined by suction dredge. The pit run gravel is conveyed to a drain stockpile to reduce the water content. The gravel is then fed into the primary feed bin at a rate of 250 T/hr. Oversized material is removed by a grizzly before the gravel is fed to the primary screen plant. Undersized material is conveyed to the wash plant side secondary screen plant, while oversized material is fed into a primary cone crusher. Sized gravel is conveyed to another crusher for further size reduction. The crushed gravel is then transferred to the road mix side secondary screen plant. Oversized material is conveyed back for further crushing, and

undersized material is conveyed to a stockpile. Sized gravel is conveyed to the wash plant secondary screen plant. Sand sized material is separated from gravel sized material and transported via a sand screw to a stockpile. The remaining gravel is conveyed to a washed gravel stockpile.

2. Area Classification

The rock crushing facility covered by this permit is a portable source and may operate in both PM-10 attainment and non-attainment areas throughout the state of Idaho. The facility is currently located in Eagle, Idaho, which is in northern Ada County. Northern Ada County is in air quality control region (AQCR) 64, zone 11, and is considered nonattainment for PM-10 and CO. No minor source prevention of significant deterioration (PSD) baseline dates have been triggered in AQCR 64 as of June 30, 1995.

3. Emission Estimates

Emission estimates to determine the PTE for aggregate processing and handling are very conservatively determined through the use of a spreadsheet. The spreadsheet has been developed using EPA's compilation of air pollutant emission factors (AP-42), Table 8.19.1-1 to conservatively estimate the facility's emissions from all point sources. The PTE is estimated based on emissions not including fugitive emissions. It is important to note that the emissions from crushing, screening and aggregate transfer are not considered fugitive sources because they can reasonably pass through a stack, chimney, vent or other functionally equivalent opening. The emissions estimate is used to determine if the facility could be classified as a PSD major facility, which requires a more detailed analysis, and if the facility would be subject to Title V operating permit requirements, including registration fees. The spreadsheet requires the user to input the number of crushers located at the facility and the maximum hourly aggregate throughput to the facility. The following assumptions have been incorporated into the spreadsheet:

a. Crushers

100% of the maximum throughput enters the primary and secondary crushers, 75% of the maximum throughput enters each subsequent crusher, and the control efficiency at each crusher is 70%;

b. Screens

There is a corresponding screen for each crusher, 100% of the maximum throughput enters each screen, and the control efficiency at each screen is 70%;

c. Transfer Points

There are 7 transfer points associated with each crusher, 100% of the maximum throughput goes through the first half of the transfer points and 50% of the throughput goes through the second half of the transfer points, the average wind speed is 10 miles per hour, the moisture content of the material is 2.5%, and the control efficiency at each transfer point is 70%;

The control efficiency of 70% was chosen based on the use of water spray to control emissions of dust as a very conservative estimate. According to Fugitive Dust Control Technology, 1983, Page 45 and Page 363 the control efficiency obtained by using water on crushing, screening and aggregate transfer points ranges from 70% -90%. The moisture content of the soil (2.5%) is based on an estimate of typical soil moisture content in Idaho. The Idaho Soil Conservation Commission was consulted and agreed that 2.5% was a reasonable number. The wind speed of 10 miles per hour is based on the midrange wind speed that is valid for equation (1) from AP-42 page 13.2.4-3 and is considered reasonable if not conservative.

The particulate emission estimate for this facility is uncontrolled, 47 T/yr and controlled, 14.1 T/yr. The emission estimate spreadsheet for this rock crushing facility is included in this technical analysis as Appendix A.

The emissions are inherently limited below certain triggering levels in the permit (i.e. PSD and Title V thresholds) by placing limits on maximum throughput and hours of operation, in this case 250 T/hr maximum throughput and 4000 hours per year operation. The emissions are not limited to specific pound per hour or ton per year emission rates for the following reasons. On page number one (1) of AP-42, EPA discusses recommended uses of emission factors. EPA states that, "emission factors are very useful tools for estimating emissions of air pollutants. However, because such factors are averages obtained from data of wide range and varying degrees of accuracy, emissions calculated this way for a given facility are likely to differ from that facility's actual emissions." To help users of AP-42 understand the reliability and accuracy of emission factors, EPA discusses Emission

Factor Ratings on page number eight (8) of AP-42. EPA states that each emission factor in AP-42 "... is given a rating (A through E with A being the best) which reflects the quality and the amount of data on which the factors are based." EPA also states, "... a factor based on a single observation of questionable quality, or one extrapolated from another factor for a similar process, would probably be labeled D or E." AP-42 emission factors for sand and gravel processing plants, and crushed stone processing have emission factor ratings ranging from C to E. Another factor that limits the accuracy of the emissions estimates is the assumptions of silt content and moisture content. The assumptions are for worst case conditions, resulting in high emission estimates. Worst case conditions are chosen to ensure that the emissions are never underestimated. Though these factors are used to estimate emissions, they are likely to overestimate an individual facility's actual emissions and would not be reliable to determine compliance with any applicable standard. This is particularly true if the emissions were to be used in any dispersion model to estimate ambient impacts to compare to the national ambient air quality standards. Although the emissions rate is very conservatively calculated it is still used in determining the facility classification.

It is important to note that no generator was listed as part of this facility. It is assumed that power for this facility is provided on site. If the facility moves to a new location and a generator is required, the facility will need to request a modification to this permit to include the generator emissions.

4. Facility Classification

Rock crushing plants are not designated facilities, as defined in IDAPA 16.01.01.006.25 (Rules for the Control of Air Pollution in Idaho). This rock crushing plant is subject to the New Source Performance Standards (Title 40 Code of Federal Regulations Part 60, Subpart OOO, Standards of Performance for Non-metallic Mineral Processing Plants) because the maximum throughput rate is above one hundred fifty tons per hour (150 T/hr). This rock crushing plant is not a major facility as defined in IDAPA 16.01.01.006.54 and IDAPA 16.01.01.008.14. The SIC code for this facility is 1442, Construction Sand and Gravel. The facility classification for this particular rock crushing facility is "B" because the uncontrolled potential to emit is estimated below one hundred tons per year (100 T/yr). The spreadsheet included as Appendix A automatically determines the facility classification.

5. Regulatory Review

This rock crushing facility requires a Permit to Construct because it has modified, increasing the maximum throughput, and thus the emission rate.

The following rules and/or regulations were reviewed in this permit analysis:

<u>IDAPA 16.01.01.201</u>	Permit to Construct;
<u>IDAPA 16.01.01.202</u>	Application Procedures;
<u>IDAPA 16.01.01.203</u>	Permit Requirements for New and Modified Stationary Sources;
<u>IDAPA 16.01.01.209</u>	Procedures for Issuing Permits;
<u>IDAPA 16.01.01.211</u>	Obligation to Comply;
<u>IDAPA 16.01.01.577.01.a.ii</u>	Ambient PM-10 Air Quality Standard;
<u>IDAPA 16.01.01.650</u>	Control of Fugitive Dust;
<u>IDAPA 16.01.01.651</u>	Fugitive Dust Precautions; and
<u>40 CFR 60, Subpart 000</u>	Standards of Performance for Nonmetallic Mineral Processing Plants.

6. Permit Conditions

The general permits are designed to allow for operational flexibility by authorizing the installation, replacement and removal of equipment without significant regulatory burden to the permit holder, so long as the equipment is equivalent to that already permitted.

The permit limits the PTE by limiting the facilities maximum aggregate throughput and hours of operation in Sections 3.1 and 3.2. In order to ensure continuous compliance, the facility will be required to monitor and record these parameters on both a daily and annual basis. The PTE is also limited by requiring that all fugitive and point sources of

dust (particulate matter) be reasonably controlled. The permittee must also monitor and record the methods used to reasonably control all sources of dust emissions each day during operation.

On top of requiring reasonable control, opacity limits are placed on all crushers, transfer points and fugitive sources in accordance with 40 CFR Part 60, Subpart 000. Visible emissions from all dust sources are not to be observed leaving the property boundary for more than 3 minutes in any 60 minute period. The opacity and visible emission limits are methods that can be used to determine reasonable control, and to protect the national ambient air quality standards (NAAQS).

Any time the source relocates it will be required to notify DEQ of the new site of operations, the start-up date, the number and type of crushers and submit a plot plan which shows the property boundary.

7. Modeling

Estimated emissions due to aggregate crushing and handling are expected to vary considerably from the source's actual emissions. Modeling results would reflect the emission estimates with an added level of conservatism built into the modeling. Because of the range and accuracy questions involved in the emissions estimate, modeling of dust emissions will not be conducted. However, to ensure no ambient air quality standard is violated due to emissions generated by crushing, screening, aggregate handling and any fugitive emissions sources, the permit requires that emissions from crushing, screening, aggregate handling and fugitive sources not be visible leaving the property boundary for more than 3 minutes in any 60 minute period. If these emissions are not visible crossing the property boundary there should be no significant, if any, impact on ambient air and the NAAQS will not be violated. Therefore, the crushing facility may operate in both PM-10 attainment and non-attainment areas.

8. Fees

The facility is not major as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees in accordance with IDAPA 16.01.01.526 are not applicable.

Technical Analysis - Low's Ready Mix, Inc.

November 21, 1995

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RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommend that Low's Ready Mix be issued a Permit to Construct for this portable rock crushing facility. No public comment period is recommended, no entity has requested a comment period and no PSD Permit to Construct requirements apply.

DS/dcf:LOWS/LOWS.TM

- cc: R. Wilkosz, TSB
- P. Rayne, AFS
- NIRO
- NCIRO
- SWIRO
- SCIRO
- SEIRO
- EIRO
- Source File
- COF

APPENDIX A

***LOW'S READY MIX
PORTABLE ROCK CRUSHING FACILITY***

EMISSION ESTIMATES

CRUSHER EMISSION ESTIMATE

Company Name: Low's Ready Mix, Inc.
 Mailing Address: 2344 Dunyon
 City/State/Zip: Eagle, Idaho 83616

Date Created: 01-Jun-95
 Last Modified: 23-Oct-95
 Engineer: Daniel P. Salgado

Number of Crushers: 1
 Max. Hourly Throughput: 250 [=] ton/hr
 Max. Hours of Operation: 4000 [=] hr/yr
 Max. Yearly Throughput: 1 [=] MM ton/yr

CRUSHING CONTROLLED PTE: GENERATOR PM-10 PTE:
 14.11 [=] ton/yr 0.00 [=] ton/yr
 CRUSHING UNCONTROLLED PTE: TOTAL FACILITY PM-10 PTE:
 47.0 [=] ton/yr 14.11 [=] ton/yr

FACILITY CLASSIFICATION:
B

Crushers & Screens

Emission Source (1)	No. Units	Max. Hourly Throughput tph/unit	Annual Process Rate MM tpy/unit	Control Efficiency	Per Unit		
					Uncontrolled Emission [=] lb/ton	Controlled Emission [=] ton/yr	Total Emission [=] ton/yr
Crusher 1 and 2	1	250	1.00	70%	0.4	0.1	0.4
Crusher 3 through N	0	188	0.75	70%	0.9	0.3	0.0
Screen 1 through N	1	250	1.00	70%	36	11	36
					37	11	36

Transfer Points

Number of Transfer Points:	(3)	
	First 1/2 of TP's	Second 1/2 of TP's
No. Units	3.5	3.5
Throughput/Unit [=] MM ton/yr	1	0.5
K _c (4)	0.74	0.74
U [=] mph (5)	10	10
M [=] % (6)	2.5	2.5
EF [=] lb/ton (7)	0.0043	0.0043
Control Efficiency	70%	70%
Emissions/Unit [=] ton/yr	2	1
Uncontrolled	1	0
Controlled	7	4
Total Emissions [=] ton/yr	2	1
Uncontrolled		
Controlled		
Total	11	3

Notes:
 (1) N = Number of crushers
 (2) AP-42 Table 11.19.2.2. EF Rating: Crushers - C, Screens - E.
 (3) Number of Transfer Points = N*(4)
 (4) K_c = particle size multiplier (< 30 um) [=] dimensionless
 (5) U = mean wind speed [=] mph
 (6) M = material moisture content [=] %
 (7) EF = K*0.0032*(U/5)^{1.3} / (M/2)^{1.4} [=] lb/ton AP-42 13.2.4.3. EF Rating: A.