



Montana Department of
ENVIRONMENTAL QUALITY

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January 13, 2012

Randy Weimer
Environmental Manager – Stillwater Mining Company – Nye Facility
2562 Nye Road
Nye, Montana 59061

Dear Mr. Weimer:

Montana Air Quality Permit #2459-14 is deemed final as of January 13, 2012, by the Department of Environmental Quality (Department). This permit is for an underground platinum/palladium mine. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Ed Warner
Environmental Engineer
Air Resources Management Bureau
(406) 444-2467

VW:EW
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2459-14

Stillwater Mining Company – Nye Facility
2562 Nye Road
Nye, Montana 59061

January 13, 2012



MONTANA AIR QUALITY PERMIT

Issued to: Stillwater Mining Company MAQP: #2459-14
2562 Nye Road Application Complete: 11/8/11
Nye, MT 59061 Preliminary Determination Issued: 12/12/11
Department Decision Issued: 12/28/11
Permit Final: 1/13/12
AFS: 095-0001

A Montana Air Quality Permit (MAQP) is hereby granted to the Stillwater Mining Company – Nye Facility (Stillwater Mining) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I. Permitted Facilities

A. Plant Location

Stillwater Mining operates an underground platinum/palladium mine, ore processing plant, and tailings disposal at the Nye facility. The facility is located approximately 6 miles south of Nye. The legal description of the mine site is Sections 1, 2, 10, 11, 15, 16, 21, and 23, Township 5 South, Range 15 East, in Stillwater County, Montana.

B. Current Permit Action

On November 4, 2011, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) received an MAQP modification application from Bison Engineering, Incorporated (Bison) on behalf of Stillwater Mining to install a new 28 million British thermal unit per hour (MMBtu/hr) propane-fired portal heater at the 5000 East Portal to provide additional warm air to the underground mining operations during the winter months. In addition, Stillwater Mining proposed to increase the underground ventilation capacity to 2,000,000 cubic feet per minute (cfm) to meet Mine Safety and Health Administration (MSHA) standards as the total underground area expands. The increase in mine ventilation is not associated with the addition of any new sources of air emissions or changes in mine production capacity. A propane-fired concentrate dryer has been decommissioned and replaced with a hydraulic system that does not generate air emissions; therefore, Stillwater Mining requested that this dryer be removed from the MAQP.

A November 30, 2011 email correspondence from Stillwater Mining indicated that two 400 kilowatt (kW) diesel compressor engines that had been previously permitted were never installed; therefore, they could be removed from the MAQP.

The current permit action incorporates the new portal heater, removes the concentrate dryer and two 400 kW diesel compressor engines, establishes recordkeeping conditions for the shaft emergency generator, incorporates the de minimis actions that have been approved since the previous permit issuance, updates the emission inventory to reflect the new equipment and ventilation capacity, and updates permit language and rule references to current Department practices.

Section II. Permit Terms

A. Limitations and Conditions

1. Metallic mineral process fugitive emissions are subject to an opacity limitation of 10% (ARM 17.8.340 and 40 Code of Federal Regulations (CFR) 60, Subpart LL).
2. If the Department determines it to be necessary, Stillwater Mining shall install a sprinkler system or provide equivalent mitigative measures to control wind-blown emissions from the tailings facilities. The Department shall determine the necessity of the above control measures based on personal observation, complaints, or any combination of the above (ARM 17.8.752).
3. Stillwater Mining shall utilize a dust suppression program on all dirt roads. The necessity for additional measures on other portions of the road or the entire road will be determined by the Department through on-site inspections, complaints, or any combination of the above (ARM 17.8.749).
4. Mine production and milling rates shall not exceed 1,825,000 tons during any rolling 12-month time period or 5,000 tons per day (ARM 17.8.749).
5. Compliance with emission and opacity standards and testing requirements shall be as specified in 40 CFR Part 60, where applicable (ARM 17.8.749).
6. If the Department determines it to be necessary, Stillwater Mining shall provide mitigative measures to control wind-blown emissions from the east-side waste rock disposal area. The Department shall determine the necessity of the control measures above on the basis of personal observation, complaints, or any combination of the above (ARM 17.8.752).
7. Stillwater Mining shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements as required by 40 CFR 60, Subpart LL, Standards of Performance for Metallic Mineral Processing (ARM 17.8.340 and 40 CFR Part 60, Subpart LL).
8. Stillwater Mining shall not cause or authorize to be discharged into the atmosphere from any surface crushing operation, and associated material handling systems, any stack emissions that (ARM 17.8.340 and 17.8.752):
 - a. Contain particulate matter in excess of 0.05 grams per dry standard cubic meter (g/dscm) or 0.022 grains per dry standard cubic foot (gr/dscf); and
 - b. Exhibit greater than 7% opacity.
9. Stillwater Mining shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308 and ARM 17.8.749).
10. Stillwater Mining shall treat all unpaved portions of the haul roads, access roads, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.9 (ARM 17.8.749).

11. The Paste Plant Emergency Flush Pump Diesel Engine shall be used for emergency or back-up operations only and shall be limited to 500 hours of operation during any rolling 12-month time period (ARM 17.8.749).
12. The surface Nordberg cone crusher shall utilize a fabric filter baghouse to control particulate emissions (ARM 17.8.749).
13. The cement silo associated with the cement batch plant operation shall be enclosed with fabric filtration to control particulate emissions in the exhaust air (ARM 17.8.749).
14. Stillwater Mining shall not cause or authorize to be discharged into the atmosphere, from any sources associated with the cement batch plant operation, any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308 and ARM 17.8.752).
15. Water and/or chemical dust suppressant shall be available on site and used, as necessary, to maintain compliance with the opacity limitations in Section II.A.3 and Section II.A.14 (ARM 17.8.752).
16. The propane-fired portal heater at the 5000 East Portal shall have a maximum heat input capacity design rating not to exceed 28 MMBtu/hr (ARM 17.8.749).
17. The propane-fired portal heater at the 5000 East Portal shall be properly operated and maintained in a manner that satisfies the manufacturer's terms for the guarantee of pollutant emission rates (ARM 17.8.752).

B. Testing Requirements

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial start up, a United States Environmental Protection Agency (USEPA) Method(s) 1-5 and Method 9 opacity source test must be performed on any 40 CFR 60, Subpart LL, affected equipment at the facility, as appropriate. After the initial source test, additional source testing shall be conducted as required by the Department or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105; ARM 17.8.340; 40 CFR Part 60, General Provisions; and 40 CFR Part 60, Subpart LL).
2. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirement

1. Stillwater Mining shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis (ARM 17.8.749).

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information

may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). Stillwater Mining shall submit the following information annually to the Department by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

- a. The amount of ore and waste handled;
 - b. A description of any dust suppression program. With respect to the dust suppression program, the information shall include the areas of application, frequency of application, and amount;
 - c. Fuel consumption;
 - d. The total hours of operation for the Paste Plant Emergency Flush Pump Diesel Engine for the previous year;
 - e. A summary report listing the reasons for operation of the Paste Plant Emergency Flush Pump for each time the emergency diesel engine was in operation; and
 - f. Any other related information the Department may request.
2. Stillwater Mining shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include ***the addition of new emissions unit***, change in the control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
 3. Stillwater Mining shall document, by month, the total ore production at the facility. By the 25th day of each month, Stillwater Mining shall total ore production during the previous 12-months to verify compliance with the limitation in Section II.A.4. A written report of the compliance verification shall be submitted along with the annual emissions inventory (ARM 17.8.749).
 4. Stillwater Mining shall document, by month, the total hours of operation of the Paste Plant Emergency Flush Pump Diesel Engine. By the 25th day of each month, Stillwater Mining shall total the hours of operation of the Paste Plant Emergency Flush Pump Diesel Engine during the previous 12 months to verify compliance with the limitation in Section II.A.11. A written report of the compliance verification shall be submitted along with the annual emissions inventory (ARM 17.8.749).

D. Notification

1. Stillwater Mining shall provide the Department with written notification of the following dates within the specified time periods as required for 40 CFR Part 60, Subpart LL, affected facilities (ARM 17.8.340 and 40 CFR 60, Subpart LL):
 - a. Commencement of construction within 30 days after commencement of construction;
 - b. Anticipated start-up date between 30 and 60 days prior to anticipated start-up date; and
 - c. Actual start-up date within 15 days after the actual start-up date.
2. Stillwater Mining shall provide the Department with written notification of the following dates within the specified time periods for the 28 MMBtu/hr propane-fired portal heater (ARM 17.8.749):
 - a. Commencement of construction within 30 days after commencement of construction;
 - b. Anticipated start-up date between 30 and 60 days prior to anticipated start-up date; and
 - c. Actual start-up date within 15 days after the actual start-up date.

Section III. General Conditions

- A. Inspection – Stillwater Mining shall allow the Department's representatives access to the source at all times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment such as continuous emission monitoring systems (CEMS) and continuous emission rate monitoring systems (CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if Stillwater Mining fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Stillwater Mining of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The

issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Stillwater Mining may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Construction Commencement – Construction must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
 Stillwater Mining Company – Nye Facility (Stillwater Mining)
 MAQP #2459-14

I. Introduction/Process Description

A. Permitted Equipment

Emitting Unit ID	Name
EU001	Mine Ventilation Exhaust
EU002	Crushing Ore (Surface)
EU003	Load & Dump: Coarse Ore into Crusher Hopper
EU004	Load & Dump: Coarse Ore into Mill Hopper
EU005	Conveying System Transfer Points
EU006	Load & Dump Waste Rock onto Tailings Embankment/Storage
EU007	Disturbed Areas
EU008	Haul Roads
EU009	Diesel Use
EU010	Unleaded Gasoline Use
EU011	Paste Plant Emergency Flush Pump Emergency Diesel Engine (225 horsepower (hp))
EU012	Cement Batch Plant Operations
EU015	Soda Ash Silo
EU016	Propane Combustion from Portal Heaters, Space Heaters, and Line Heaters
EU017	Shaft Emergency Diesel Generator Engine (947 hp)

B. Source Description

The Stillwater Mine is located in Stillwater County near Nye, Montana. The legal description of the mine site is Sections 1, 2, 10, 11, 15, 16, 21, and 23, Township 5 South, Range 15 East, Stillwater County, Montana. The facility is an underground platinum/palladium (platinum group metals) mine. The operation includes ore and waste excavation, surface and underground crushing, conveying, grinding, flotation concentration, tailings disposal, a cement batch operation, and a paste plant operation. The concentrate extracted from the Nye mine is trucked to the Stillwater Mining Company Metallurgical Complex (smelter and refinery) for further refining and processing.

C. Permit History

(NOTE: Administrative Rules of Montana (ARM) references in this Permit History section reflect the rule numbers as they existed at the time of that permit action.)

Permit #2459 was issued for the Stillwater Mine on March 29, 1988, to Stillwater Mining. The permit was based on 1000 tons per day (TPD) of ore production.

Permit #2459A was an alteration issued October 21, 1988, to extend mining to the east side of the Stillwater River with no increase in ore production, but a slight increase in particulate emissions.

Permit #2459A-2 was issued March 11, 1991, to clarify language relative to the annual production limitation.

Permit #2459-03 was issued August 14, 1992, to increase the ore production rate from 1000 to 3500 TPD and from 365,000 to 730,000 tons per year (TPY).

Permit #2459-04 was a modification issued on April 27, 1993.

Permit #2459-05 was a modification to clarify the performance testing requirement on the wet scrubber controlling emissions from the concentrate dryer. The permit was also updated to include a more specific listing of applicable regulations.

Permit #2459-06 was an alteration issued October 18, 1995, to replace the concentrate dryer wet scrubber with a fabric filter collector (baghouse). Notification and testing requirements, relative to the baghouse, were also added.

Permit #2549-07 was a modification issued on April 17, 1997, to add crushing, screening, and hauling of bedding material to the emission inventory in the permit analysis. It had been inadvertently taken out of the emission inventory in a previous permitting action. Permit number citations in the permit and analysis were also updated.

Permit #2459-08 was issued on October 25, 1998. Stillwater Mining requested a production limit increase from 730,000 TPY or 3,500 TPD to 1,825,000 TPY or 5,000 TPD. The increased activity at the mine resulted in an increase in Particulate Matter with an aerodynamic diameter of 10 microns or less (PM₁₀) emissions of approximately 48 TPY. A New Source Review/Prevention of Significant Deterioration (PSD) review was not required for the proposed production increase because the facility is not a listed source and the facility's potential to emit (excluding fugitive emissions) does not exceed 250 TPY of any pollutant.

In addition, Stillwater Mining planned to construct and operate a new tailings impoundment located approximately 7 miles northeast of the mine site (2 miles northeast of Nye), install a pipeline system along Stillwater County Road 420 and reclaim the resulting surface disturbance, and expand the waste rock storage area located on the east side of the Stillwater River at the mine site.

Further, the language in Section II.A.1 was revised to remove the language requiring dryer emission testing every 4 years. Testing was required when the dryer's process rate increased above the process rate that the dryer was functioning at during the last performance test. For example, if the dryer process rate increased above the level it was operating at during the particulate test performed on October 21, 1996, an emissions test would be required. Also, the Department of Environmental Quality (Department) removed the requirement for Stillwater Mining to move the downwind PM₁₀ sampler within 90 days after Permit #2459-08 was final. The permit did specify that Stillwater Mining would move the sampling site to a different location, approved by the Department, at such time as the east-side waste rock storage encroached on the current location. Stillwater Mining was required to request the Department's approval of the new downwind PM₁₀ sampler at least 90 days prior to moving to a new site.

Finally, the Department added crushing, screening, and hauling of bedding material to the emission inventory in the Permit Analysis. This activity was listed in Permit #2459-07. Controlled emissions from this activity were 2.32 tons per year. **Permit #2459-08** replaced Permit #2459-07.

Stillwater Mining submitted an application on January 20, 2000, for the alteration of Permit #2459-08. The alteration included the installation and operation of a new surface jaw crusher and conveying system. The new system was determined to be subject to 40 Code of Federal Regulations (CFR), Subpart LL, New Source Performance Standards for Metallic Mineral Processing. **Permit #2549-09** replaced Permit #2459-08.

On April 11, 2001, the Department received a letter from Stillwater Mining requesting a need for permit determination for the addition of an emergency generator at the Hertzler Pump Station, a Nordberg cone crusher (maximum capacity 70 tons per hour (tph)), and associated material handling equipment. Because the potential uncontrolled emissions from the proposed changes did not exceed the de minimis threshold of 15 TPY, the permit action was accomplished under the ARM 17.8.705(1)(r). The crushing system was determined to be subject to 40 CFR 60, Subpart LL, New Source Performance Standards for Metallic Mineral Processing. **Permit #2459-10** was issued to update the permit with the new equipment and replaced Permit #2459-09.

On December 27, 2001, Stillwater Mining submitted a complete permit application for the alteration of air quality Preconstruction Permit #2459-10. The alteration involved the addition of an existing but not-permitted cement batch plant including conveyors and material silos and the modification of the existing Nordberg cone crusher. Further, the permit action incorporated an existing, but not-permitted, paste plant and associated cement silo in accordance with ARM 17.8.705(1)(r).

The above cited cement batch and paste plant operations were added to the facility as separate and distinct projects in the past but were not permitted at the time of construction. Potential emissions from the paste plant operation were less than the de minimis threshold of 15 TPY so the plant was added to the permit under ARM 17.8.705(1)(r).

On October 11, 2001, Stillwater Mining submitted information requesting a de minimis determination for the cement batch plant operation. Based on the information submitted, the Department determined that the concrete batch plant operations did not meet the definition of a de minimis source of emissions as defined in the ARM 17.8.705(1)(r).

Emission inventory calculations submitted by Stillwater Mining indicated that the cement batch plant potential to emit (PTE) is less than the de minimis threshold of 15 TPY. However, the calculations submitted to the Department included control credit for several emission points within the cement batch system. Control credit cannot be used when determining a source's PTE for a de minimis determination. Without control credit applied, the concrete batch operations exceed the de minimis threshold; therefore, a permit alteration was required.

Further, as part of the current permit action Stillwater Mining proposed to modify the existing Nordberg cone crusher, permitted under Permit #2459-10, to increase the crusher production capacity from 70 tph to 150 tph. Potential uncontrolled emissions from the Nordberg crushing operation and associated equipment exceed the de minimis threshold and, therefore, modifying the crusher to increase capacity required a permit alteration. The Nordberg cone crusher and all associated material transfer points are subject to the requirements of 40 CFR Part 60, Subpart LL, Metallic Mineral Processing Plants. Total potential controlled and uncontrolled emissions for the permit action were included in the emission inventory, Section IV.

Finally, in accordance with Permit #2459-10, as of October 1, 2001, the downwind PM₁₀ air sampler was relocated to the Stillwater Valley Ranch (Stillwater North). Attachment 1, Ambient Air Monitoring Plan – Stillwater Mining Company, to air quality Permit #2459-11 incorporated the changed downwind PM₁₀ monitoring location as well as the changes previously identified. **Permit #2459-11** replaced Permit #2459-10.

On March 19, 2002, the Department received a letter from Stillwater Mining requesting a modification to air quality Permit #2459-11. The modification included removing the Hertzler Pump Station emergency diesel generator from the list of permitted equipment and adding an emergency diesel generator (Paste Plant Emergency Flush Pump) to the Paste Plant facility. Stillwater Mining developed an alternative method of clearing the Hertzler tailings pipeline during power outages. The alternative method uses a combination of high pressure water and pigging of the line. Because Stillwater developed the previously described new method of clearing the Hertzler tailings pipeline the Hertzler Pump Station emergency diesel generator was no longer required.

The Paste Plant Emergency Flush Pump is used only during power outages to flush the paste line to avoid plugging. Because potential uncontrolled emissions from the proposed Paste Plant Emergency Flush Pump, operating under the emergency generator requirements in Section II.A.13 of the permit, did not exceed the de minimis threshold of 15 TPY, the permit action was completed in accordance with ARM 17.8.705(1)(r). **Permit #2459-12** replaced Permit #2459-11.

On May 1, 2002, the Department received a permit application for proposed changes at the Stillwater Mining facility. The proposed changes included the addition of two 1500 cubic feet per minute (cfm) 400 kW diesel air compressor engines (compressors #1 and #2) and the removal of emergency/back-up status requirements for the existing 2000 kW Caterpillar diesel powered electric generator (shaft generator). After initial review, the Department determined that the application was incomplete for lack of equipment specific information and nitrogen oxides (NO_x) air dispersion modeling. Stillwater Mining was sent a letter of incompleteness indicating the previously cited application deficiencies. On September 3, 2002, the Department received the requested incomplete information from Stillwater Mining. However, after review of the information submitted, the Department again determined that the application was incomplete and sent Stillwater Mining a letter indicating application deficiencies. Subsequently, on November 15, 2002, the Department received a letter from Stillwater Mining including the requested incomplete information and withdrawing the request to remove emergency/back-up status for the shaft generator. The application for the addition of compressors #1 and #2 was deemed complete on November 15, 2002.

Further, on May 21, 2002, the Department received a request from Stillwater Mining to relax or discontinue ambient air monitoring requirements for their facility. When determining if permitted ambient monitoring requirements can be relaxed or discontinued the Department uses the Department Monitoring Requirements Guidance Statement established October 9, 1998. The guidance statement provides an ambient air monitoring decision matrix to be used for determining the need for ambient monitoring.

Since 1988, Stillwater Mining had operated ambient air samplers on a once-every-6-day schedule from November through April and on a once-every-3-day schedule from May through October. Based on actual sampling data from the period of 1997 through 2000 and using the Department's ambient air monitoring decision matrix, the Department determined, with a high level of confidence, that discontinuation of ambient monitoring was appropriate for the Stillwater Mining facility. As stated in a letter to Stillwater Mining dated June 10, 2002, effective at the end of June 2002, Stillwater Mining is no longer subject to ambient air monitoring requirements. Under this permit action, Attachment 1, Ambient Air Monitoring Plan, was removed. Finally, the Department updated various sections of the permit to reflect current permit language and requirements. **Permit #2459-13** replaced Permit #2459-12.

D. Current Permit Action

On November 4, 2011, the Department received an MAQP modification application from Bison Engineering, Incorporated (Bison) on behalf of Stillwater Mining to install a new 28 MMBtu/hr propane-fired portal heater at the 5000 East Portal to provide additional warm air to the underground mining operations during the winter months. In addition, Stillwater Mining proposed to increase the underground ventilation capacity to 2,000,000 cubic feet per minute (cfm) to meet Mine Safety and Health Administration (MSHA) standards as the total underground area expands. A propane-fired concentrate dryer has been decommissioned and replaced with a hydraulic system that does not generate air emissions; therefore, Stillwater Mining requested that this dryer be removed from the MAQP.

On November 30, 2011, the Department received an email correspondence from Stillwater Mining with an updated list of permitted equipment. The updated list indicated that the two 400 kW diesel compressor engines that were permitted in MAQP #2459-13 were never installed and could be removed from the list of permitted equipment. This correspondence also indicated that Stillwater Mining would prefer for all of the propane-fired portal and space heaters to be grouped together as a single emitting unit referred to as Propane Usage rather than listing each unit individually. This Propane Usage unit would include the new 28 MMBtu/hr portal heater.

The Department is incorporating into the MAQP any new emitting units that were approved in accordance with the ARM 17.8.745 de minimis rule that have occurred since the issuance of MAQP #2459-13. These actions are listed below.

- On October 14, 2003, the Department approved the addition of two 2.5 MMBtu/hr propane-fired heated make-up air units for providing air exchange within the mill building.
- On January 2, 2004, the Department approved the addition of a 1.0 MMBtu/hr natural gas-fired heated make-up air unit and concrete batch plant. A November 30, 2011 email correspondence from Stillwater Mining stated that this unit does not exist at the facility; therefore, it is not included as a permitted emitting unit.
- Stillwater Mining notified the Department via correspondence dated January 27, 2004 of the installation of a 1.65 MMBtu/hr propane-fired heated make-up air unit to provide air exchange within the emissions testing bay. The correspondence demonstrated that this action was in accordance with de minimis requirements.
- On August 5, 2004, the Department approved the addition of two 0.120 MMBtu/hr propane-fired heaters for use in the administrative building and the installation of a 50-ton capacity soda ash silo.
- Stillwater Mining requested a de minimis determination in a May 1, 2006 letter for the temporary use of a 1.5 megawatt (MW) diesel generator. Stillwater Mining confirmed in a November 11, 2011 email that this unit was only required for temporary use and is not currently located on site; therefore, it is not included as a permitted emitting unit.
- On May 2, 2008, the Department approved the temporary use of three 400-kW diesel generators. Stillwater Mining confirmed in a November 11, 2011 email that these units were only required for temporary use and are not currently located on site; therefore, they are not included as permitted emitting units.

- On June 22, 2011, the Department approved the temporary use of three 689 horsepower (hp) diesel generator engines. Stillwater Mining confirmed in a November 11, 2011 email that these units were only required for temporary use and are not currently located on site; therefore, they are not included as permitted emitting units.

The current permit action incorporates the new portal heater, removes the concentrate dryer, establishes recordkeeping conditions for the shaft emergency generator, incorporates the de minimis actions that have been approved since the previous permit issuance, updates the emission inventory to reflect the new equipment and ventilation capacity, and updates permit language and rule references to current Department practices. **MAQP #2459-14** replaces MAQP #2459-13.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the operation. The complete rules are stated in the ARM and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary, using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Montana Clean Air Act, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Stillwater Mining shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

Stillwater Mining must comply with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. This rule requires that no person shall cause or authorize the production, handling, transportation, or storage of any material unless reasonable precautions to control emission of airborne particulate matter are taken. Such emissions of airborne particulate matter from any stationary source shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, suffer, allow or permit particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause, suffer, allow, or permit to be discharged into the outdoor atmosphere from any operation, process or activity, particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.340 Standard of Performance for New Stationary Sources. The owner and operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60. Stillwater Mining is considered a new source performance standards (NSPS)-affected facility under 40 CFR 60 and is subject to the requirements of the following subpart:
 - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
 - b. 40 CFR 60, Subpart LL – Standards of Performance for Metallic Mineral Processing Plants - requires an opacity limitation of 10% for metallic mineral process fugitive emissions, a stack emission limitation of 0.05 grams per dry standard cubic meter (0.022 grains per dry standard cubic foot), and a stack opacity limitation of 7%. The surface mining operations at Stillwater Mining are subject to 40 CFR 60, Subpart LL.
 7. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. The owner or operator of any existing or new stationary source, as defined and applied in 40 CFR Part 61, shall comply with the standards and provisions of 40 CFR Part 61.
 8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants (HAP) for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:
 - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAP Subpart as listed below:
 - b. 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters. The proposed portal heater does not meet the definition of a process heater per this subpart, nor is the facility a major source of HAP. Therefore, this subpart is not triggered as part of this permit action.
 - c. 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). Stillwater Mining has two emergency diesel RICE at the Nye facility which are affected sources under this subpart. However, § 63.6590(b)(3)(vii) states that existing commercial emergency stationary RICE located at an area source of HAP emissions do not have to meet the requirements of this subpart.
- D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:
1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the

submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Stillwater Mining submitted the proper air quality application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the PTE greater than 25 TPY of any pollutant. Stillwater Mining has the PTE greater than 25 TPY of particulate matter (PM), PM₁₀, NO_x, and carbon monoxide (CO); therefore, a permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Stillwater submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Stillwater submitted an affidavit of publication of public notice for the November 15, 2011 issue of the *Billings Gazette*, a newspaper of general circulation in the Town of Billings in Yellowstone County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit

and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Stillwater of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745(1) for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-- Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This Stillwater Mining facility is not a major stationary source because it is not listed and it does not have the potential to emit more than 250 tons per year (excluding fugitive emissions) of any pollutant.

G. ARM 17.8, Subchapter 12 - Operating Permit Program, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 TPY of any pollutant.
 - b. PTE > 10 TPY of any one Hazardous Air Pollutant (HAP), or PTE > 25 TPY of a combination of all HAPs, or a lesser quantity as the Department may establish by rule.
 - c. Sources with PTE > 70 TPY of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2459-14 for Stillwater, the following conclusions were made.
 - a. The facility's PTE is greater than 100 TPY for PM₁₀.
 - b. The facility's PTE is less than 10 TPY for any one HAP and less than 25 TPY all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject to a current NSPS – 40 CFR 60, Subpart LL – Standards of Performance for Metallic Mineral Processing Plants.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source, nor a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

Based on the preceding information, Stillwater Mining is subject to the Title V Operating Permit program. Operating Permit #OP2459-04 was issued final and effective on July 5, 2007. Changes made under the current permit action

constitute a significant modification of Operating Permit #OP2459-04; therefore, in accordance with ARM 17.8.1227, Stillwater shall submit a permit application for a significant modification to their Title V Operating Permit within 12 months of startup of the new equipment from this permitting action. Alternatively, the significant modification could be incorporated into the forthcoming Title V Renewal application if it is submitted within 12 months of the startup of the new equipment.

III. BACT Determination

A BACT determination is required for each new or modified source. Stillwater shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was submitted by Bison on behalf of Stillwater in MAQP application #2459-14, addressing some available methods of controlling PM₁₀, NO_x, CO, volatile organic compounds (VOC), and sulfur dioxide (SO₂) emissions from the 28 MMBtu/hr propane-fired portal heater. The Department reviewed these methods, as well as previous BACT determinations. The following control options have been reviewed by the Department in order to make the following BACT determination.

28 MMBtu/hr Propane-fired Portal Heater

CO and VOC BACT

CO and VOCs are formed from the incomplete combustion of organic constituents in propane. Because CO and VOC are generated and controlled by the same mechanisms, they are addressed together. Two general and nonexclusive approaches were analyzed for controlling these emissions.

- Improve combustion conditions to facilitate complete combustion in the heater burner.
- Complete oxidation of the exhaust stream after it leaves the heater burner.

Post-combustion CO/VOC control is accomplished via add-on equipment that creates an environment of high temperature and oxygen concentration to promote complete oxidation of the CO and VOC remaining in the exhaust. This can be facilitated at relatively low temperatures by the use of certain catalyst materials.

Step 1 – Identify All Control Technologies

Three primary control technologies for CO and VOC are:

- Proper system design and operation
- Thermal oxidation
- Catalytic oxidation

Proper System Design and Operation – The base level of emissions for CO and VOC is proper design and operation of the proposed heater without additional add-on control. The CO and VOC emissions can be minimized by controlling the system temperatures through operation at maximum loads; increasing oxygen concentrations; maximizing combustion residence time; and improving mixing of the fuel, exhaust gases, and combustion air. Generally, a reduction in CO and VOC emissions will result in an increase in NO_x emissions.

Thermal Oxidation – Thermal oxidizers are essentially supplementary chambers that complete the fuel combustion of unburned organic constituents. They accomplish this by creating high temperature environment with optimal oxygen concentration, mixing, and residence time. They require temperatures of approximately 1400 degrees Fahrenheit (°F) to 1500°F. This high-temperature environment is produced by the combustion of supplemental fuel, generally natural gas.

Several design variations address different inlet concentrations, air flow rates, fuel efficiency requirements, and other operational variables. All of them function using the basic principles described above. One commonly used design is called a regenerative thermal oxidizer (RTO) which is evaluated for this BACT analysis. RTOs are capable of reducing CO and VOC emissions by 95 to 99 percent.

Catalytic Oxidation – Catalytic oxidizers employ the same principles as thermal oxidizers, but they use catalysts to lower the temperature required to affect complete oxidation. One commonly used design is called a regenerative catalytic oxidizer (RCO) which is evaluated for this BACT analysis. The optimum temperature range for catalytic oxidizers is generally about 800°F. Catalytic oxidizers must be located downstream of a PM control device if the exhaust stream contains appreciable concentrations of PM because catalysts are prone to plugging and poisoning. For this application, the portal heater would be combusting a clean fuel (propane) and PM loading is not anticipated to be a problem.

Like thermal oxidizers, catalytic oxidizer designs include many varieties to address specific operational conditions and requirements. They are generally capable of 90 to 99 percent destruction or removal efficiency at steady-state conditions.

Step 2 – Eliminate Technically Infeasible Control Options

The proposed portal heater is a direct-fired burner where the combustion exhaust gases and the heated air are inseparable. This configuration makes the practical installation of the add-on pollution control equipment addressed here technically infeasible. The remaining option is proper system design and operation.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Proper design and operation was determined to be the only technically feasible control option for the portal heater.

Step 4 – Evaluate Most Effective Controls and Document Results

Proper design and operation was determined to be the only technically feasible control option for the portal heater.

Step 5 – Identify BACT

Stillwater Mining proposes that proper design and operation of the 28 MMBtu/hr propane-fired heater is BACT for CO and VOC. The Department reviewed the supplied United States Environmental Agency (USEPA) RACT/BACT/LAER Clearinghouse (RBLCL) report for emission limits on similar sources and found that the vendor-guaranteed emission rates for the proposed heater are consistent with other permitted facilities. The Department concurs that proper design and operation is BACT for the proposed heater CO and VOC emissions.

NO_x BACT

The annual uncontrolled NO_x emissions are guaranteed by the vendor to not exceed 0.73 pounds per hour (lb/hr) which is equivalent to 0.03 pounds per million British thermal units (lb/MMBtu) of heat input capacity. Stillwater Mining proposes that at these low levels of potential emissions, any add-on control would prove to be cost prohibitive and unreasonable on a cost per ton of NO_x removed basis. Stillwater Mining proposes that proper design and operation of the 28 MMBtu/hr propane-fired heater is BACT for NO_x. The Department reviewed the supplied RBLC report for emission limits on similar sources and found that the vendor-guaranteed emission rate for the proposed heater is consistent with other permitted facilities. The Department concurs that proper design and operation is BACT for the proposed heater NO_x emissions.

SO₂, PM, PM₁₀, and PM with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}) BACT

The annual uncontrolled emissions for SO₂, PM, PM₁₀, and PM_{2.5} are quite low. Stillwater Mining has proposed that any add-on pollution control equipment would prove to be cost prohibitive and unreasonable on a cost per ton of pollutant removed basis. Stillwater Mining proposes that proper design and operation of the 28 MMBtu/hr propane-fired heater is BACT for SO₂, PM, PM₁₀, and PM_{2.5}. The Department concurs that proper design and operation constitutes BACT for these pollutants based on the low level of uncontrolled emissions and the cost inefficiency of any add-on control equipment.

The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

Increased Underground Mine Ventilation Capacity

The increase in underground mine ventilation capacity is not associated with the addition of any new emitting units or a change in mine process operations; therefore, there are no control technologies to analyze and implement.

IV. Emission Inventory

Emission Inventory: Current Permit Action (includes de minimis actions since MAQP #2459-13)							
	tons/year						
Source	PM	PM₁₀	PM_{2.5}	NO_x	CO	VOC	SO₂
28 MMBtu/hr propane portal heater	0.94	0.94	0.94	12.79	36.62	1.07	2.01
2 x 2.5 MMBtu/hr propane heaters	0.17	0.17	0.17	3.11	1.80	0.19	0.36
1.65 MMBtu/hr propane heater	0.06	0.06	0.06	1.03	0.59	0.06	0.12
50 yard/day concrete batch plant	3.09	0.89	0.46	0.00	0.00	0.00	0.00
2 x 0.120 MMBtu/hr propane heaters	0.01	0.01	0.01	0.15	0.09	0.01	0.02
soda ash silo	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Total	4.27	2.06	1.64	17.08	39.09	1.34	2.51

NOTE

These emissions may also be reflected in the following tables where appropriate.

Update to Mine Ventilation Exhaust is reflected in the "Particulate Emissions: Facility Wide" table.

Particulate Emissions: Facility Wide (Fugitive and Non-Fugitive)					
tons/year					
Source	Uncontrolled PM	Control Measure	% Control	Uncontrolled PM₁₀	Controlled PM₁₀
Disturbed Areas	15.78	Re-Vegetation	75	15.78	4.74
Mine Ventilation Exhaust	150.17	None	NA	150.17	150.17
Dumping: Coarse Ore to Conveyor System	5.48	Minimum Fall Distance	NA	5.48	5.48
Conveyor System Transfer Points	38.33	Covered Conveyors	90	38.33	3.83
Load, Dump Coarse Ore to Mill Hopper Grizzly	5.48	Minimum Fall Distance	NA	5.48	5.48
Haul Roads – Ore to Mill Hopper Grizzly	0.32	Watering	50	0.32	0.16
Haul Roads – Ore from East Side	2.78	Chemical Dust Suppressant	90	2.78	0.28
Load, Dump to Coarse Ore Stockpile	0.55	None	NA	0.55	0.55
Haul Roads – Ore to Coarse Ore Pile from West Side	0.053	Watering	50	0.053	0.265
Load Dump Waste Rock on Tailings Embankment	13.09	Minimum Fall Distance	NA	13.09	13.09
Haul Roads – Waste Rock to Tailings Embankment	24.90	Watering/Chemical Dust Suppressant	50/90	24.90	5.63
Light Duty Vehicle Traffic: Unpaved Roads	20.31	Chemical Dust Suppressant	90	20.31	2.03
Diesel Exhaust from Surface Activities	4.61	None	NA	4.61	4.61
Hertzler Impoundment	7.57	None	NA	7.57	7.57
East Side Waste Rock Pile	3.71	None	NA	3.71	3.71
Ore Surface Jaw Crusher (5000 ft level)	8.22	Watering/Chemical Dust Suppressant	50/90	8.22	4.11
Apron Feeder to Jaw Crusher	3.66	Watering/Chemical Dust Suppressant	50/90	3.66	1.83
Dribble Conveyor	3.66	Watering/Chemical Dust Suppressant	50/90	3.66	1.83
Conveying from Jaw Crusher	10.41	Covered Conveyors	90	10.41	5.48
Paste Plant Emergency Flush Pump Diesel Engine (225 hp) – 500 hours of operation	0.12	None	NA	0.12	0.12
Cement Batch Plant Operations	84.86	Dust Collector/ Watering/ Enclosures	90/50/90	37.57	17.50
Paste Plant Operations	2.88	Dust Collector/Enclosures	90	1.44	0.14

Particulate Emissions: Facility Wide (Fugitive and Non-Fugitive)					
tons/year					
Source	Uncontrolled PM	Control Measure	% Control	Uncontrolled PM₁₀	Controlled PM₁₀
Nordberg Surface Cone Crusher and Associated Equipment	26.28	Dust Collector/Watering/Covered Conveyors	90	11.17	1.12
Emergency Shaft Diesel Generator (947 hp) – 500 hours of operation	0.17	None	NA	0.17	0.17
28 MMBtu/hr propane portal heater	0.94	None	NA	0.94	0.94
2 x 2.5 MMBtu/hr propane heaters	0.17	None	NA	0.17	0.17
1.65 MMBtu/hr propane heater	0.06	None	NA	0.06	0.06
50 yard/day concrete batch plant	3.09	None	NA	0.89	0.89
2 x 0.120 MMBtu/hr propane heaters	0.01	None	NA	0.01	0.01
soda ash silo	0.01	None	NA	0.01	0.01
Total	437.67			371.63	241.97
<ul style="list-style-type: none"> A complete emission inventory for particulate matter and PM₁₀ emission sources facility wide was included in Title V operating permit application #OP2459-00 and subsequent preconstruction and Title V operating permit revisions and is on file with the Department. 					

Gaseous Emissions: Facility Wide (Fugitive and Non-Fugitive)				
tons/year				
Source	NO_x	CO	VOC	SO₂
Explosive Detonation (4200 tpy ANFO)	35.70	140.70	NA	4.20
Diesel Equipment (1,415,200 gal/yr)	202.35	108.60	23.85	22.07
Unleaded Gasoline (51,568 gal/yr)	4.79	102.96	3.35	0.14
Paste Plant Emergency Flush Pump Engine (225 hp) – 500 hours of operation	1.74	0.38	0.14	0.12
Emergency Diesel Shaft Generator (947 hp) – 500 hours of operation	5.68	1.30	0.15	0.10
28 MMBtu/hr propane portal heater	12.79	36.62	1.07	2.01
2 x 2.5 MMBtu/hr propane heaters	3.11	1.80	0.19	0.36
1.65 MMBtu/hr propane heater	1.03	0.59	0.06	0.12
2 x 0.120 MMBtu/hr propane heaters	0.15	0.09	0.01	0.02
Total	267.35	393.03	28.82	29.13
<ul style="list-style-type: none"> NA = Not Applicable or unknown A complete emission inventory for gaseous emission sources facility wide was included in Title V operating permit application #OP2459-00 and subsequent preconstruction and Title V operating permit revisions and is on file with the Department. 				

Facility-Wide Non-Fugitive Emission Sources and Controlled Potential Emissions							
tons/year							
Source	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂
Mine Ventilation Exhaust (East and West Combined)	150.17	150.17	150.17	*0.00	*0.00	*0.00	*0.00
Surface Jaw Crusher	4.11	4.11	0.62	0.00	0.00	0.00	0.00
Surface Nordberg Cone Crusher	1.31	0.59	0.39	0.00	0.00	0.00	0.00
Paste Plant Emergency Flush Pump Diesel Engine (225 hp) – 500 hours per year	0.12	0.12	0.12	1.74	0.38	0.14	0.12
Emergency Diesel shaft Generator (947 hp) – 500 hours per year	0.17	0.17	0.17	5.68	1.30	0.15	0.10
28 MMBtu/hr propane portal heater	0.94	0.94	0.94	12.79	36.62	1.07	2.01
2 x 2.5 MMBtu/hr propane heaters	0.17	0.17	0.17	3.11	1.80	0.19	0.36
1.65 MMBtu/hr propane heater	0.06	0.06	0.06	1.03	0.59	0.06	0.12
2 x 0.120 MMBtu/hr propane heaters	0.01	0.01	0.01	0.15	0.09	0.01	0.02
Total	157.06	156.34	152.65	24.50	40.77	1.62	2.72
<ul style="list-style-type: none"> For sources existing prior to MAQP #2459-14, PM_{2.5} is assumed to equal PM₁₀ for engines based on AP-42, Table 3.3-1 footnote b. For mine ventilation exhaust, all PM is assumed to be equivalent due to lack of information that indicates otherwise. For crushing operations with fabric filter control, controlled PM_{2.5} is assumed to equal 30% of controlled PM based AP-42 Appendix B.2, Category 3 uncontrolled particle size distribution and Table B.2-3 control efficiencies for low temperature fabric filtration. For watering/chemical dust suppressant controlled crushing operations, controlled PM_{2.5} is assumed to equal 15% of controlled PM based on AP-42 Appendix B.2, Category 3 particle size distribution and estimated 50% control efficiency. A complete emission inventory for particulate and gaseous emission sources facility wide was included in Title V operating permit application #OP2459-00 and subsequent preconstruction and Title V operating permit revisions and is on file with the Department. <p>* Mine ventilation exhaust emissions result from explosive detonation and mobile diesel sources only and are considered fugitive or non-regulated emissions. All underground stationary point sources are electrically powered.</p>							

Potential Emissions Calculations

Current Permit Action (MAQP #2459-14)

28 MMBtu/hr propane-fired portal heater

Propane-fired combustion

Maximum Process Rate = 0.30601 10³ gal/hr (91.5 MMBtu/10³ gal from AP-42, Table 1.5-1, footnote a, 07/08)

Maximum Hours of Operation = 8,760 hrs/yr

Filterable PM Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.268 ton/yr

Filterable PM₁₀ Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.268 ton/yr

Filterable PM_{2.5} Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, MDEQ assumes all PM<2.5um, 07/08)

Calculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.268 ton/yr

Condensable PM_{2.5} Emissions:Emission Factor = 0.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)Calculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (0.5 lb/10³ gal) * (ton/2000 lb) = 0.670 ton/yr**Total PM Emissions:**

Total PM = Filterable + Condensable

0.268 ton/yr + 0.670 ton/yr = 0.938 ton/yr

CO Emissions:

Emission Factor = 8.36 lb/hr (Vendor Guarantee)

Calculation: (8760 hrs/yr) * (8.36 lb/hr) * (ton/2000 lb) = 36.617 ton/yr

NO_x Emissions:

Emission Factor = 2.92 lb/hr (Vendor Guarantee)

Calculation: (8760 hrs/yr) * (2.92 lb/hr) * (ton/2000 lb) = 12.790 ton/yr

SO₂ Emissions:Emission Factor = 0.10S lb/10³ gal (AP 42, Table 1.5-1, S = Sulfur content of fuel in gr/100 ft³, Commercial boiler, 07/08)S = 15 gr/100 ft³ (Based on information historically submitted by Stillwater for propane)Emission Factor = 1.5 lb/10³ galCalculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (1.5 lb/10³ gal) * (ton/2000 lb) = 2.010 ton/yr**VOC Emissions:**Emission Factor = 0.8 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08, VOC = TOC - CH₄)Calculation: (0.306 10³ gal/hr) * (8760 hrs/yr) * (0.8 lb/10³ gal) * (ton/2000 lb) = 1.072 ton/yr**Mine Ventilation Exhaust**

Based on Emission Inventory calculation method from OP2459-00 application

Total PM Emissions:

Flow rate = 2,000,000 cfm

Reference: Amax Henderson Mine emission test

Emission Factor = 0.002 grains per cubic foot (gr/ft³)Calculation: (2,000,000 ft³/min) * (0.002 gr/ft³) * (60 min/hr) * (8760 hrs/yr) (ton/1.4E7 gr) = 150.17 ton/yr**10/14/2003****Addition of 2 x 2.5 MMBtu/hr propane-fired heated make-up air units**

To provide air exchange within the mill building

Propane-fired combustionMaximum Process Rate = 0.05464 10³ gal/hr (91.5 MMBtu/10³ gal from AP-42, Table 1.5-1, footnote a, 07/08)

Maximum Hours of Operation = 8,760 hrs/yr

Filterable PM Emissions:Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.048 ton/yr**Filterable PM₁₀ Emissions:**Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.048 ton/yr

Filterable PM_{2.5} Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, MDEQ assumes all PM<2.5um, 07/08)

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.048 ton/yr

Condensable PM_{2.5} Emissions:

Emission Factor = 0.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (0.5 lb/10³ gal) * (ton/2000 lb) = 0.120 ton/yr

Total PM Emissions:

Total PM = Filterable + Condensable

0.048 ton/yr + 0.120 ton/yr = 0.168 ton/yr

CO Emissions:

Emission Factor = 7.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (7.5 lb/10³ gal) * (ton/2000 lb) = 1.795 ton/yr

NO_x Emissions:

Emission Factor = 13 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (13 lb/10³ gal) * (ton/2000 lb) = 3.111 ton/yr

SO₂ Emissions:

Emission Factor = 0.10S lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

S = Sulfur content of fuel in gr/100 ft³ (AP-42, Table 1.5-1, footnote e, 07/08) = 15 gr/100 ft³ (Supplied information)

Emission Factor = 1.5 lb/10³ gal

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (1.5 lb/10³ gal) * (ton/2000 lb) = 0.359 ton/yr

VOC Emissions:

Emission Factor = 0.8 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08, VOC = TOC - CH₄)

Calculation: (0.055 10³ gal/hr) * (8760 hrs/yr) * (0.8 lb/10³ gal) * (ton/2000 lb) = 0.191 ton/yr

1/27/2004

Addition of a 1.65 MMBtu/hr propane-fired heated make-up air unit

To provide air exchange within the emissions testing bay

Propane-fired combustion

Maximum Process Rate = 0.01803 10³ gal/hr (91.5 MMBtu/10³ gal from AP-42, Table 1.5-1, footnote a, 07/08)

Maximum Hours of Operation = 8,760 hrs/yr

Filterable PM Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.016 ton/yr

Filterable PM₁₀ Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.016 ton/yr

Filterable PM_{2.5} Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, MDEQ assumes all PM<2.5um, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (0.2 lb/10³ gal) * (ton/2000 lb) = 0.016 ton/yr

Condensable PM_{2.5} Emissions:

Emission Factor = 0.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (0.5 lb/10³ gal) * (ton/2000 lb) = 0.039 ton/yr

Total PM Emissions:

Total PM = Filterable + Condensable

0.016 ton/yr + 0.039 ton/yr = 0.055 ton/yr

CO Emissions:

Emission Factor = 7.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (7.5 lb/10³ gal) * (ton/2000 lb) = 0.592 ton/yr

NO_x Emissions:

Emission Factor = 13 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (13 lb/10³ gal) * (ton/2000 lb) = 1.027 ton/yr

SO₂ Emissions:

Emission Factor = 0.10S lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

S = Sulfur content of fuel in gr/100 ft³ (AP-42, Table 1.5-1, footnote e, 07/08) = 15 gr/100 ft³ (Supplied information)

Emission Factor = 1.5 lb/10³ gal

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (1.5 lb/10³ gal) * (ton/2000 lb) = 0.118 ton/yr

VOC Emissions:

Emission Factor = 0.8 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08, VOC = TOC - CH₄)

Calculation: (0.018 10³ gal/hr) * (8760 hrs/yr) * (0.8 lb/10³ gal) * (ton/2000 lb) = 0.063 ton/yr

1/2/2004

Addition of a concrete batch plant 50 yards/day maximum capacity

Mobile Combo-8 Transit Mix Plant Model No. MC8-9T, ambient process \ no CPM

PM generating activities

Maximum Process Rate = 50.00000 yd³/day (Supplied info)

Maximum Hours of Operation = 365 days/yr

Aggregate Delivery to Ground Storage**Filterable PM Emissions:**

Emission Factor = 0.0064 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: (50 yd³/day) * (365 days/yr) * (0.0064 lb/yd³) * (ton/2000 lb) = 0.058 ton/yr

Filterable PM₁₀ Emissions:

Emission Factor = 0.0031 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: (50 yd³/day) * (365 days/yr) * (0.0031 lb/yd³) * (ton/2000 lb) = 0.028 ton/yr

Filterable PM_{2.5} Emissions:

Emission Factor = 0.00096 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: (50 yd³/day) * (365 days/yr) * (0.00096 lb/yd³) * (ton/2000 lb) = 0.009 ton/yr

Sand Delivery to Ground Storage**Filterable PM Emissions:**

Emission Factor = 0.0015 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0015 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.014 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.0007 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0007 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.006 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.000225 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.000225 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Aggregate Transfer to Hopper

Filterable PM Emissions:

Emission Factor = 0.0064 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0064 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.058 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.0015 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0015 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.014 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.00096 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.00096 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.009 \text{ ton}/\text{yr}$

Sand Transfer to Hopper

Filterable PM Emissions:

Emission Factor = 0.0015 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0015 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.014 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.0007 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0007 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.006 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.000225 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.000225 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Cement Delivery to Silo

Filterable PM Emissions:

Emission Factor = 0.0002 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0002 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.0001 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0001 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.001 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.00003 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.00003 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.000 \text{ ton}/\text{yr}$

Weight Hopper Loading

Filterable PM Emissions:

Emission Factor = 0.0079 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0079 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.072 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.0038 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0038 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.035 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.001185 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.001185 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.011 \text{ ton}/\text{yr}$

Truck Mix Loading

Filterable PM Emissions:

Emission Factor = 0.315276 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.315276 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 2.877 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.08742 lb/yd³ (AP 42, Table 11.12-5, 06/06)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.08742 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.798 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.0472914 lb/yd³ (AP 42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 15% of PM, 09/90)

Calculation: $(50 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0472914 \text{ lb}/\text{yd}^3) * (\text{ton}/2000 \text{ lb}) = 0.432 \text{ ton}/\text{yr}$

Total PM = 3.095 ton/yr

Total PM₁₀ = 0.888 ton/yr

Total PM_{2.5} = 0.464 ton/yr

8/5/2004

Addition of 2 x 0.120 MMBtu/hr propane-fired heaters

To provide heat for administration building expansion

Propane-fired combustion

Maximum Process Rate = 0.00262 10³ gal/hr (91.5 MMBtu/10³ gal from AP-42, Table 1.5-1, footnote a, 07/08)

Maximum Hours of Operation = 8,760 hrs/yr

Filterable PM Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: $(0.003 \text{ } 10^3 \text{ gal}/\text{hr}) * (8760 \text{ hrs}/\text{yr}) * (0.2 \text{ lb}/10^3 \text{ gal}) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Filterable PM₁₀ Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, all PM<10um, 07/08)

Calculation: $(0.003 \text{ } 10^3 \text{ gal}/\text{hr}) * (8760 \text{ hrs}/\text{yr}) * (0.2 \text{ lb}/10^3 \text{ gal}) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.2 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, MDEQ assumes all PM<2.5um, 07/08)

Calculation: $(0.003 \text{ } 10^3 \text{ gal}/\text{hr}) * (8760 \text{ hrs}/\text{yr}) * (0.2 \text{ lb}/10^3 \text{ gal}) * (\text{ton}/2000 \text{ lb}) = 0.002 \text{ ton}/\text{yr}$

Condensable PM_{2.5} Emissions:

Emission Factor = 0.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: $(0.003 \text{ } 10^3 \text{ gal}/\text{hr}) * (8760 \text{ hrs}/\text{yr}) * (0.5 \text{ lb}/10^3 \text{ gal}) * (\text{ton}/2000 \text{ lb}) = 0.006 \text{ ton}/\text{yr}$

Total PM Emissions:

Total PM = Filterable + Condensable

0.002 ton/yr + 0.006 ton/yr = 0.008 ton/yr

CO Emissions:

Emission Factor = 7.5 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.003 10³ gal/hr) * (8760 hrs/yr) * (7.5 lb/10³ gal) * (ton/2000 lb) = 0.086 ton/yr

NO_x Emissions:

Emission Factor = 13 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

Calculation: (0.003 10³ gal/hr) * (8760 hrs/yr) * (13 lb/10³ gal) * (ton/2000 lb) = 0.149 ton/yr

SO₂ Emissions:

Emission Factor = 0.10S lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08)

S = Sulfur content of fuel in gr/100 ft³ (AP-42, Table 1.5-1, footnote e, 07/08) = 15 gr/100 ft³ (Supplied information)

Emission Factor = 1.5 lb/10³ gal

Calculation: (0.003 10³ gal/hr) * (8760 hrs/yr) * (1.5 lb/10³ gal) * (ton/2000 lb) = 0.017 ton/yr

VOC Emissions:

Emission Factor = 0.8 lb/10³ gal (AP 42, Table 1.5-1, Commercial boiler, 07/08, VOC = TOC - CH₄)

Calculation: (0.003 10³ gal/hr) * (8760 hrs/yr) * (0.8 lb/10³ gal) * (ton/2000 lb) = 0.009 ton/yr

8/5/2004

Addition of a 50-ton soda ash silo, 8 tons per day max feed rate

To assist in the flotation process, dust collector is process equipment, ambient process \ no CPM

PM generating activities

Maximum Process Rate = 8.00000 tons/day (Supplied info)

Maximum Hours of Operation = 365 days/yr

Soda Ash Storage/Loading**Filterable PM Emissions:**

Emission Factor = 0.0051 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM₁₀=PM_{2.5}, 07/93)

Calculation: (8 yd³/day) * (365 days/yr) * (0.0051 lb/ton) * (ton/2000 lb) = 0.007 ton/yr

Filterable PM₁₀ Emissions:

Emission Factor = 0.0051 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM₁₀=PM_{2.5}, 07/93)

Calculation: (8 yd³/day) * (365 days/yr) * (0.0051 lb/ton) * (ton/2000 lb) = 0.007 ton/yr

Filterable PM_{2.5} Emissions:

Emission Factor = 0.0051 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM₁₀=PM_{2.5}, 07/93)

Calculation: (8 yd³/day) * (365 days/yr) * (0.0051 lb/ton) * (ton/2000 lb) = 0.007 ton/yr

Soda Ash Transfer (discharge to mill apron feeder)**Filterable PM Emissions:**

Emission Factor = 0.0002 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM₁₀=PM_{2.5}, 07/93)

Calculation: (8 yd³/day) * (365 days/yr) * (0.0002 lb/ton) * (ton/2000 lb) = 0.000 ton/yr

Filterable PM₁₀ Emissions:

Emission Factor = 0.0002 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM₁₀=PM_{2.5}, 07/93)

Calculation: $(8 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0002 \text{ lb}/\text{ton}) * (\text{ton}/2000 \text{ lb}) = 0.000 \text{ ton}/\text{yr}$

Filterable PM_{2.5} Emissions:

Emission Factor = 0.0002 lb/ton (AP 42, Table 8.12-2, MDEQ assumes PM=PM10=PM2.5, 07/93)

Calculation: $(8 \text{ yd}^3/\text{day}) * (365 \text{ days}/\text{yr}) * (0.0002 \text{ lb}/\text{ton}) * (\text{ton}/2000 \text{ lb}) = 0.000 \text{ ton}/\text{yr}$

Updated Emissions for Shaft Emergency Diesel Generator Engine

Operational Capacity of Engine = 947 hp (based on 12/9/11 email correspondence)

Hours of Operation = 500.00 hours

Total PM/PM₁₀/PM_{2.5} Emissions:

Emission Factor = 0.0007 lbs/hp-hr (All PM < 1 mm, AP-42, Sec. 3.4, Table 3.4-1, 10/96)

Calculation: $(500 \text{ hours}) * (947 \text{ hp}) * (0.0007 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.17 \text{ ton}/\text{yr}$

NO_x Emissions:

Emission Factor = 0.024 lbs/hp-hr (AP-42, Sec. 3.4, Table 3.4-1, 10/96)

Calculation: $(500 \text{ hours}) * (947 \text{ hp}) * (0.024 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 5.68 \text{ ton}/\text{yr}$

CO Emissions:

Emission Factor = 0.0055 lbs/hp-hr (AP-42, Sec. 3.4, Table 3.4-1, 10/96)

Calculation: $(500 \text{ hours}) * (947 \text{ hp}) * (0.0055 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 1.30 \text{ ton}/\text{yr}$

VOC Emissions:

Emission Factor = 0.00064155 lbs/hp-hr (AP-42, Sec. 3.4, Table 3.4-1, 10/96)

Calculation: $(500 \text{ hours}) * (947 \text{ hp}) * (0.00064155 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.15 \text{ ton}/\text{yr}$

SO₂ Emissions:

Emission Factor = 0.0004045 lbs/hp-hr (AP-42, Sec. 3.4, Table 3.4-1, S=500ppm, 10/96)

Calculation: $(500 \text{ hours}) * (947 \text{ hp}) * (0.0004045 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.10 \text{ ton}/\text{yr}$

Diesel Engine Paste Plant Flush Pump

Operational Capacity of Engine = 225 hp (based on 12/9/11 email correspondence)

Hours of Operation = 500.00 hours

Total PM/PM₁₀/PM_{2.5} Emissions:

Emission Factor = 0.0022 lbs/hp-hr (All PM < 1 mm, AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(500 \text{ ton}/\text{yr}) * (225 \text{ lbs}/\text{hp-hr}) * (0.0022 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.12 \text{ ton}/\text{yr}$

NO_x Emissions:

Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(500 \text{ ton}/\text{yr}) * (225 \text{ lbs}/\text{hp-hr}) * (0.031 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 1.74 \text{ ton}/\text{yr}$

CO Emissions:

Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(500 \text{ ton}/\text{yr}) * (225 \text{ lbs}/\text{hp-hr}) * (0.00668 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.38 \text{ ton}/\text{yr}$

VOC Emissions:

Emission Factor = 0.00247 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(500 \text{ ton}/\text{yr}) * (225 \text{ lbs}/\text{hp-hr}) * (0.00247 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.14 \text{ ton}/\text{yr}$

SO₂ Emissions:

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(500 \text{ ton}/\text{yr}) * (225 \text{ lbs}/\text{hp-hr}) * (0.00205 \text{ lbs}/\text{hp-hr}) * (\text{ton}/2000 \text{ lb}) = 0.115 \text{ ton}/\text{yr}$

V. Existing Air Quality

From 1988 through June of 2002, Stillwater Mining operated an ambient PM₁₀ sampling program around the mine area. Measured PM₁₀ concentrations were consistently below applicable standards. The ambient 24-hour standard is 150 micrograms per cubic meter (µg/m³), and the ambient annual standard is 50 µg/m³. Measured PM₁₀ results are summarized in the table below for calendar years 1995 and 1996, which are representative of all years monitoring was conducted.

Summary of the PM₁₀ Data for 1995 and 1996 Stillwater Mine, Nye, Montana					
Site	Sample Year	Maximum 24-hour (ug/m ³)	Second Highest 24-hour (ug/m ³)	Arithmetic Annual Mean (ug/m ³)	Number of Samples
1 (Upwind)	1995	26	22	8.1	76
1 (Upwind)	1996	33	29	8.1	91
2 (Downwind)	1995	28	26	9.5	76
2 (Downwind)	1996	39	35	9.8	91

VI. Ambient Air Quality Impact Analysis

In the view of the Department, the amount of emissions generated by this project would not cause or contribute to an exceedance of any ambient standard. Any potential impacts would be minimized by the conditions and limitations established in MAQP #2459-14.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Stillwater Mining Company
2562 Nye Road
Nye, MT 59061

Montana Air Quality Permit (MAQP) number: 2459-14

Preliminary Determination Issued: 12/12/11

Department Decision Issued: 12/28/11

Permit Final: 1/13/12

1. *Legal Description of Site:* The Stillwater Mine is located in Sections 1, 2, 10, 11, 15, 16, 21, and 23, Township 5 South, Range 15 East in Stillwater County, Montana.
2. *Description of Project:* The Stillwater Mining Company (Stillwater Mining) is proposing a modification of their MAQP. The modification would involve the addition of a 28 million British thermal units per hour (MMBtu/hr) propane-fired portal heater and an increase in the mine's underground ventilation capacity to 2,000,000 cubic feet per minute (cfm). The increase in mine ventilation is not associated with the addition of any new emitting units or change in mine operations.
3. *Objectives of Project:* The objective of installing the 28 MMBtu/hr portal heater is to replace an existing 13.5 MMBtu/hr portal heater that would be relocated to another area of the mine. These heaters provide additional warm air to the underground operations during the winter months, prevent water lines from freezing, prevent ice from forming at portal entrances, and contribute to a safer working environment. The increase in underground mine ventilation capacity is to meet Mine Safety and Health Administration (MSHA) standards as the total underground area expands.
4. *Alternatives Considered:* In addition to the proposed action, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because Stillwater Mining demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a Best Available Control Technology (BACT) analysis, would be included in MAQP #2459-14.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites				X		Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

- A. Terrestrial and Aquatic Life and Habitats:
- B. Water Quality, Quantity, and Distribution:
- C. Geology and Soil Quality, Stability, and Moisture:
- D. Vegetation Cover, Quantity, and Quality:
- E. Aesthetics:
- F. Air Quality:

The installation and operation of proposed portal heater would impact the above listed physical and biological resources in the proposed project area because emissions of particulate matter (PM), PM less than 10 microns in aerodynamic diameter (PM₁₀), PM less than 2.5 microns in aerodynamic diameter (PM_{2.5}), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur dioxide (SO₂) would increase at the facility. However, the Department believes that any impacts would be minor due to the relatively small amount of the above listed pollutants emitted, dispersion characteristics of pollutants and the atmosphere, and conditions placed in MAQP #2459-14, including, but not limited to, BACT requirements discussed in Section V of the permit analysis for this permit.

Further, from 1988 through June 2002, Stillwater Mining operated ambient air samplers to measure PM₁₀ in the mine area and demonstrated that PM₁₀ levels in the area fell below all applicable ambient standards. The Department believes that the minor amount of particulate emissions resulting from the proposed project would not change this impact from Stillwater Mining operations. Overall, any impact to the above listed physical and biological resources in the proposed project area would be minor as a result of the current permit action.

- G. Unique Endangered, Fragile, or Limited Environmental Resources:

In an effort to assess any potential impacts to any unique endangered, fragile, or limited environmental resources, the Department contacted the Montana National Heritage Program (MNHP). Search results concluded there are five species of concern and one ecological site

located within the vicinity of the facility. The search area, in this case, is defined by the township and range of the site with an additional one-mile buffer. The MNHP concluded that the Northern Goshawk, Uinta Chipmunk, Grizzly Bear, Wolverine, and Canada Lynx would potentially be located near the project site. The Department determined that based on the fact the Stillwater Mine is an existing industrial facility and that the proposed project would occur within the facility boundary, any effects on the local populations would be expected to be minor.

H. Demands on Environmental Resource of Water, Air, and Energy:

The installation and operation of the proposed portal heater would result in increased propane usage and result in a minor increase in energy demand in the area. Any impact on the environmental resource of energy in the area would be minor. In addition, the proposed project would not impact the demand for the environmental resource of water in the area as no water would be used to facilitate the heater. Further, an increase in air pollution would result from the proposed project; however, the Department believes that any impacts would be minor due to the relatively small amount of the above listed pollutants emitted, dispersion characteristics of pollutants and the atmosphere, and conditions placed in MAQP #2459-14, including, but not limited to, BACT requirements discussed in Section V of the permit analysis for this permit.

I. Historical and Archaeological Sites:

The proposed project would take place within a previously disturbed industrial site. According to past correspondence from the Montana State Historic Preservation Office (SHPO), there is low likelihood of adverse disturbance to any known archaeological or historic site, given previous industrial disturbance within the area. Therefore, it is unlikely that the current permit action would impact any known historic or archaeological site.

J. Cumulative and Secondary Impacts:

Overall, cumulative and secondary impacts from the proposed project would result in minor impacts to the physical and biological environment in the immediate area because emissions of PM, PM₁₀, PM_{2.5}, NO_x, CO, VOCs, and SO₂ would increase from the Stillwater Mining facility. Air pollution from the facility would be controlled by Department-determined BACT, as discussed in Section V of the permit analysis, and conditions in MAQP #2459-14. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #2459-14.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue				X		Yes
D	Agricultural or Industrial Production				X		Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities				X		Yes
G	Quantity and Distribution of Employment				X		Yes
H	Distribution of Population				X		Yes
I	Demands for Government Services			X			Yes

		Major	Moderate	Minor	None	Unknown	Comments Included
J	Industrial and Commercial Activity				X		Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The Department has prepared the following comments.

- A. Social Structures and Mores:
- B. Cultural Uniqueness and Diversity:
- C. Local and State Tax Base and Tax Revenue:
- G. Quantity and Distribution of Employment:
- H. Distribution of Population:

The proposed project would cause no disruption to the above-listed economic and social attributes of the area of operation because the proposed project would not involve the hiring of any new employees, increase potential industrial production at the existing mine, or change the existing industrial nature of the site or any surrounding area.

- D. Agricultural or Industrial Production:

The proposed project would not displace or otherwise affect any agricultural land or practices because the compressors would be installed and operated within the existing Stillwater Mining industrial site. In addition, the proposed operations would not result in any increase in production and thus no increase in the amount of product available for further processing/refinement at the Stillwater Mine – Base Metals refinery in nearby Columbus, Montana. Overall, there would be no impact on agricultural or industrial production as a result of the proposed project.

- E. Human Health:

The proposed project would result in a minor increase in air pollution from Stillwater Mine. However, MAQP #2459-14 would incorporate conditions including, but not limited to, the BACT requirements discussed in Section V of the permit analysis, to ensure that the operations would maintain compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. Any impact to human health from the proposed project would be minor.

- F. Access to and Quality of Recreational and Wilderness Activities:

The proposed changes to the Stillwater Mining facility would take place at the existing facility and would therefore not have any effect on any access to and quality of recreational and wilderness activities.

- I. Demands for Government Services:

Government services would be required for acquiring the appropriate permits from government agencies. Demands for government services would be minor.

J. Industrial and Commercial Activity:

The proposed project would not result in any increase in industrial or commercial activity at or near the Stillwater Mining site.

K. Locally Adopted Environmental Plans and Goals:

The Department is not aware of any locally adopted environmental plans or goals. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts:

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social environment in the immediate area. As previously stated, the proposed permit changes would not result in any change to Stillwater Mining personnel and would not result in any increase in ore production at the facility. The Department believes that Stillwater Mining could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #2459-14.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permit action is for the installation and operation of for a new portal heater for the purpose of increasing working comfort, preventing water lines from freezing, preventing ice from forming at portal entrances, and contributing to a safer working environment. Underground mine ventilation capacity would also be increased to meet MSHA regulations for planned future underground expansion; however, no new emitting units or process changes are associate with this change at this time. MAQP #2459-14 would include conditions and limitations to ensure the facility would operate in compliance with all applicable air quality rules and regulations. In addition, there would be no significant impacts associated with this proposal, as described above.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air and Waste management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: Ed Warner
Date: November 30, 2011