

AIR QUALITY PERMIT

Issued to:	Stillwater Mining Company Columbus Metallurgical Complex P.O. Box 1209 Columbus, MT 59019	Permit: #2635-15 Application Complete: 7/18/07 Preliminary Determination Issued: 8/13/07 Department Decision Issued: 8/29/07 Permit Final: 09/14/07 AFS #095-0002
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An air quality permit, with conditions, is hereby granted to the Stillwater Mining Company – Columbus Metallurgical Complex (Stillwater) 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 Description

Stillwater operates a platinum group precious metals smelter and base metals refinery in Columbus, Montana. The legal description of the site is Section 27, Township 2 South, Range 20 East, Stillwater County, Montana. A list of permitted equipment is contained in Section I.A of the permit analysis.

B. Current Permit Action

On July 18, 2007, the Montana Department of Environmental Quality (Department) received a complete application from Stillwater for the modification of Permit #2635-14. Specifically, Stillwater proposed the following changes under the current permit action:

- Installation and operation of a second electric furnace within the Precious Metals Smelter (Smelter);
- Installation and operation of associated bins and material transfer equipment to accommodate operation of the proposed second electric furnace within the Smelter;
- Control of four existing and previously uncontrolled open-top feed bins within the Smelter for the purpose of capturing and recovering any residual dust which may contain precious metal product. The affected units will be controlled by the existing Smelter emission control equipment; and
- Revision of existing permit language and terminology used in the current permit to accurately reflect the proposed modifications.

The requested permit modification will not increase allowable emissions of any regulated pollutant from the permitted facility as each proposed new emitting unit will be vented through existing and permitted emission control equipment and all existing and affected material throughput limits will remain the same under the current permit action.

SECTION II: Limitations and Conditions

A. Emission Limitations

1. Particulate emissions from the smelting circuit and the concentrate drying and revert crushing circuit shall be limited to 0.011 grains per dry standard cubic foot (gr/dscf) for each circuit. This emission limitation applies at each main stack (ARM 17.8.749, ARM 17.8.752, and ARM 17.8.1204).

2. Process fugitive emissions are subject to an opacity limitation of 10% (40 CFR 60, Subpart LL and ARM 17.8.340).
3. Sulfur dioxide (SO₂) emissions from the smelting circuit shall be limited to (ARM 17.8.749, ARM 17.8.752, and ARM 17.8.1204):
 - a. 235 pounds per hour calculated on a 1-hour averaging basis;
 - b. 50 pounds per hour calculated on a rolling 24-hour average basis; and
 - c. 74 tons per year calculated on a rolling 12-month average.
4. A Continuous Emissions Monitoring System (CEMS) to monitor stack volumetric flow rate and record SO₂ emissions discharged to the atmosphere shall be installed and operated on the smelting circuit to demonstrate compliance with Section II.A.3 of this permit (ARM 17.8.749).

The monitoring systems shall be certified according to the performance specification procedures of 40 CFR Part 60, Appendix B, Performance Specifications 2 and 6. The CEMS must meet the quality assurance requirements contained in 40 CFR Part 60, Appendix F, with the exception that a Relative Accuracy Test Audit (RATA) be performed at least every 2 years, rather than every year, and that either a Cylinder Gas Audit (CGA) or Relative Accuracy Audit (RAA) be performed in each of the other quarters in the 2-year period (ARM 17.8.749 and 40 CFR Part 60).

5. Stillwater shall not cause or authorize visible 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 (ARM 17.8.304).
6. The hydrated lime silo at the smelting circuit shall be controlled by a baghouse. Particulate emissions from the baghouse shall be limited to 0.02 gr/dscf (ARM 17.8.752).
7. Particulate emissions from the concentrate dryer shall be controlled by a baghouse. The concentrate dryer exhaust air stream shall be routed to the concentrate dryer baghouse and then vented to the main stack for the concentrate drying and revert crushing circuit. Particulate matter emissions from the baghouse shall be limited to 0.011 gr/dscf. This emission limit shall be applied at the main stack for the concentrate drying and revert crushing circuit (ARM 17.8.749).
8. Particulate emissions from the nickel sulfate crystal dryer at the Base Metals Refinery shall be controlled by a baghouse. Particulate matter emissions shall be limited to 0.022 gr/dscf (ARM 17.8.749).
9. Stillwater shall apply water and/or chemical stabilization to the general work area, haul roads, and access roads, as necessary, to control fugitive emissions (ARM 17.8.749).
10. Particulate emissions from the 200-ton dried concentrates silo shall be controlled by a baghouse. Particulate matter emissions from the baghouse shall be limited to 0.05 grams per dry standard cubic meter (g/dscm) (0.022 gr/dscf) (40 CFR 60, Subpart LL, and ARM 17.8.340).

11. Stack emissions from any 40 CFR 60, Subpart LL, affected facility, not discharged from a wet scrubber, are subject to an opacity limitation of 7% (40 CFR 60, Subpart LL, and ARM 17.8.340).
12. Particulate matter emissions from the Secondary Preparation Building Crushing System shall be controlled by a baghouse. The Secondary Preparation Building Crushing System includes a feed hopper, belt feeder, two pocket conveyors, a jaw crusher, a roll crusher, a sizing screen, a sampler, and a bagger. Particulate matter emissions shall be limited to 0.022 gr/dscf (ARM 17.8.749).
13. Particulate matter emissions from the Security Area Material Handling System at the Base Metals Refinery shall be controlled by a baghouse. The Security Area Material Handling System includes a mixer/blender, pin mill, sample preparation dust hood, portable hopper, stationary de-lumper, surge hopper, and pin mill feed screw. Particulate matter emissions shall be limited to 0.022 gr/dscf (ARM 17.8.749).
14. Stillwater shall limit PM₁₀ emissions from the facility to a level that does not exceed 100 tons during any rolling 12-month time period. Any calculations used to establish PM₁₀ emissions shall be approved by the Department and shall incorporate the emission limits contained in Section II.A.1 (as validated through source testing on an every 2-year basis) (ARM 17.8.749 and ARM 17.8.1204).

B. Operational Limitations

1. Maximum smelting circuit concentrate and precious metals recyclable material throughput shall be limited to the following (ARM 17.8.749):
 - a. Concentrate Throughput Limit: 37,550 ton/yr
 - b. Precious Metals Recyclable Material Throughput Limit: 11,000 ton/yr
2. Emissions from the Revert Crushing Area and the Concentrate Dryer shall be routed to the concentrate drying and revert crushing circuit main stack and through the associated emission control equipment (baghouse). Particulate matter emissions from these sources are subject to the emission limit for the concentrate drying and revert crushing circuit. This emission limit shall be applied at the main stack for the concentrate drying and revert crushing circuit (ARM 17.8.749).
3. Emissions from the following sources shall be routed to the smelting circuit main stack and through all associated emission control equipment (baghouse and scrubber). Particulate matter emissions from these sources are subject to the emission limit for the smelting circuit. This emission limit shall be applied at the main stack for the smelting circuit (ARM 17.8.749 and ARM 17.8.752):
 - a. Original Furnace Number 2 (includes 6 hoods)
 - b. Top Blown Rotary Converter (TBRC) 2-1
 - c. TBRC 2-2
 - d. TBRC 2-3
 - e. EF Matte/TBRC Slag Dryer
 - f. TBRC Matte Dryer
 - g. Granulator Tipping Station Hood
 - h. New Furnace Number 2 (including 10 hoods)
 - i. New TBRC Slag Bin

- j. New Recyclable Materials/Reverts/Iron Residue Bin
- 4. Stillwater shall comply with all applicable standards and limitations, and the reporting, recordkeeping, monitoring, and notification requirements of 40 CFR 60, Subpart LL, Standards of Performance for Metallic Mineral Processing Plants (40 CFR 60, Subpart LL).
- 5. Gypsum production shall be limited to 25,000 tons during any rolling 12-month time period (ARM 17.8.749).
- 6. Smelter slag production shall be limited to 60,000 tons during any rolling 12-month time period (ARM 17.8.749).
- 7. The amount of waste ore, used for lining the slag pits, delivered to and handled at the facility shall be limited to 40,000 tons during any rolling 12-month time period (ARM 17.8.749).
- 8. Each emergency/back-up generator at the Stillwater facility shall be limited to 500 hours of operation during any rolling 12-month time period (ARM 17.8.749).

C. Testing Requirements

- 1. Stillwater shall conduct particulate and opacity performance source tests on the main stacks for the smelting circuit and the concentrate drying and revert crushing circuit to demonstrate compliance with the applicable emission limit(s) in Section II.A.1 and Section II.A.5. The compliance source testing shall be conducted on the smelting circuit and concentrate drying and revert crushing circuit stacks every 2 years or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.340 and ARM 17.8.749).
- 2. Stillwater shall conduct SO₂ performance source testing on the smelting circuit stack to monitor compliance with the emission limit in Section II.A.3.a. The compliance source testing shall be conducted on an every 5-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.749 and ARM 17.8.105).
- 3. Stillwater shall conduct a particulate performance source test on the process baghouse for the nickel sulfate crystal dryer, at the Base Metals Refinery, to demonstrate compliance with the emission limit in Section II.A.8. The compliance source testing shall be conducted on an every 5-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.749).
- 4. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
- 5. The Department may require further testing (ARM 17.8.105).

D. Monitoring and Reporting Requirements

- 1. Stillwater 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 permit analysis. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. Stillwater shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include a change in 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 emissions 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 shall document, by month, the amount of concentrate and precious metal-bearing recyclable material throughput at the smelting circuit. By the 25th day of each month, Stillwater shall total the amount of concentrate and the amount of precious metal-bearing recyclable material throughput at the smelting circuit for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.B.1. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
4. Stillwater shall document, by month, the amount of gypsum produced. By the 25th day of each month, Stillwater shall total the amount of gypsum produced during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.B.5. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
5. Stillwater shall document, by month, the amount of smelter slag produced. By the 25th day of each month, Stillwater shall total the amount of smelter slag produced during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.B.6. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
6. Stillwater shall document, by month, the amount of waste ore, used to line the slag pits, delivered to the facility. By the 25th day of each month, Stillwater shall total the amount of waste ore delivered to the facility during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.B.7. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
7. Stillwater shall document, by month, the PM₁₀ emissions from the facility. By the 25th day of each month, Stillwater shall total the PM₁₀ emissions from the facility for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.14. The information for each of the previous months shall be submitted along with the annual emission inventory. Any calculations made to determine PM₁₀ emissions

shall be approved by the Department and, where applicable, shall be based on unit capacities and emission limits contained in Section II.A. of this permit (ARM 17.8.749).

8. Stillwater shall document, by month, the operating hours for each emergency/back-up generator operated at the site. By the 25th day of each month, Stillwater shall total the operating hours of each emergency/back-up generator for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.B.8. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
9. Stillwater shall annually certify, as required by ARM 17.8.1204(3)(b), that its actual emissions are less than those that would require the source to obtain an air quality Title V operating permit. The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted no later than March 1 and may be submitted with the annual emission inventory information (ARM 17.8.1204 and ARM 17.8.1207).

E. Notification

Stillwater shall provide the Department with written notification of the following dates within the specified time periods:

1. Stillwater shall notify the Department, in writing, within 30 days of the date construction is commenced on any affected facility defined under 40 CFR 60, Subpart LL (ARM 17.8.340 and 40 CFR 60, Subpart LL).
2. Stillwater shall notify the Department within 15 days after the actual date of initial start up of an affected facility defined in 40 CFR 60, Subpart LL (ARM 17.8.340 and 40 CFR 60, Subpart LL).
3. Stillwater shall provide the Department with written notification of the actual start-up date of the second electric furnace and all associated equipment added to the facility under Permit #2635-15 within 15 days after the actual start-up date of the affected unit (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – Stillwater shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Stillwater fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this 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.* (ARM 17.8.756).

- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action 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 the Department at the location of the 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 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 within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
 Stillwater Mining Company – Columbus Metallurgical Complex
 Permit #2635-15

I. Introduction

A. Permitted Equipment/Emitting Units. Stillwater Mining Company – Columbus Metallurgical Complex (Stillwater) operates the following Equipment:

Emitting Unit	Stack
Concentrate Drying and Revert Crushing Circuit	Vents to Stack
Hydrated Lime Silo (Concentrate Drying and Revert Crushing Circuit)	Vents to Stack
Smelting Circuit	Vents to Stack
Limestone Flux Bin (smelting circuit)	Vents Inside Building
Pebble Lime Feed System (smelting circuit)	Vents Inside Building
Hydrated Lime Silo (smelting circuit)	Vents to Stack
Gypsum Dumping and Loading	Fugitive Emissions
Ore Dumping and Handling (Slag Pit Liner)	Fugitive Emissions
Haul Roads	Fugitive Emissions
Concentrate Dryer	Vents to Stack
NSC Dryer	Vents to Stack
Dried Concentrates Silo	Vents to Stack
Smelter Emergency Generator #1 (600 kW)	Vents to Stack
Smelter Emergency Generator #2 (600 kW)	Vents to Stack
BMR Emergency Generator	Vents to Stack
New Natural Gas Fired Boiler (15 MMBtu/hr)	Vents to Stack
Fire Assay Area Baghouse	Vents to Stack
Fire Assay Area Fume Hoods (13)	Vents through Fire Assay Area Baghouse
Security Area Baghouse	Vents Inside Building
Sample Preparation Area Baghouse	Vents Inside Building
Sample Preparation Dryer #1	Vents to Stack
Sample Preparation Dryer #2	Vents to Stack
Sample Preparation Area Fume Hoods (9)	Vents through Sample Preparation Area Baghouse
Nickel Sulfate Bagging Unit Baghouse	Vents to Stack
Smelter Slag Material Transfer	Fugitive Emissions
EF Matte/TBRC Slag Dryer	Vents to Stack
TBRC Matte Dryer	Vents to Stack
Refinery Main Scrubber	Vents to Stack
Refinery Electrowin Scrubber	Vents to Stack
Refinery Electrowin Area	Vents Inside Building
SO ₂ Hygiene Fan	NA
Granulator	NA
Revert Crushing Area	Vents to Stack
30-ton Wet Concentrate Dryer Feed Hopper	Vents Inside Building
40-ton #2 Dried Concentrates Bin	Vents to Indoor Stack
Dust Bin	Vents to Indoor Stack
Recyclable Materials/Reverts/Iron Residue Bin	Vents Inside Building
TBRC Slag Bin	Vents Inside Building
EF Matte Bin (2)	Vents Inside Building
Security Area Electric Dryers	Vents to Stack
Moffit Smelter Building Heaters (2)	Vents to Stack
Secondary Preparation Building Baghouse	Vents Inside Building
Refinery Laboratory Scrubbers (3)	Vents to Stack

- Updates to the equipment list are included in the most recent emission inventory on file with the Department.

B. Permit History

The original air quality **Permit #2635** for this facility was issued May 9, 1990. The initial process rate was planned at 15 tons per day of concentrate, which corresponded to an ore production rate of 1,000 tons per day from the Stillwater Mine. The permit analysis was based on a process rate of 30 tons per day of concentrate in anticipation of increased production.

The Department of Environmental Quality (Department) determined that the most significant air quality concern with the project was sulfur dioxide (SO₂) emissions. All process gases from the electric furnace, Top Blown Rotary Converters (TBRC), and granulation drier, as well as gases from all the tap hoods, are ducted to the scrubbing system. The rated capacity of the scrubber is 15,000 standard cubic feet per minute (SCFM), containing 370 pounds (lb) of particulate matter per hour (hr) and 2242 lb SO₂/hr. The spent scrubbing solution is "regenerated" by adding hydrated lime, which precipitates the sulfur solids and is then pumped to a filter for final removal of gypsum solid from the circuit. The thickener overflow is softened by bubbling carbon dioxide (CO₂) gas through the solution that precipitates calcium carbonate. Soda ash, which is added to make up sodium in the scrubbing solution, also has a softening effect. The solids from the slurry are removed by cycloning and then are filtered along with the gypsum. The now regenerated and softened solution is sent to the scrubber make-up tank and is ready for re-use.

Concentrate storage bins, bucket elevators, and screw feeders are ducted through a baghouse for particulate removal. The cleaned air then joins the scrubber exhaust and is ducted to the stack. Process exhaust air from the furnace, TBRC, and granulation circuit is routed through a process baghouse for removal of particulate. The exhaust from the process baghouse is then routed to the scrubbing circuit for SO₂ removal.

The performance of the gas cleaning system is monitored with inlet and outlet SO₂ Continuous Emission Monitor Systems (CEMS) and gas flow, pressure, and temperature sensors. Operator alarms to adjust the system are activated if limits are approached. If the adjustments are ineffective in reducing the SO₂ level, oxygen to the TBRC is automatically shut down, suspending the primary SO₂ source.

The project included two 50-kilowatt (kW) portable diesel generators to provide temporary or emergency electricity.

The first permit alteration was given **Permit #2635-01** and was issued February 10, 1993. The permit alteration included an increase in concentrate input from 30 tons per day to 40 tons per day. SO₂ emission limitation increases were also approved.

Permit #2635-02 was issued December 21, 1993, as a modification that incorporated the construction and operation of a small base metal refinery. The process involves the acid leaching of copper, nickel, and iron from the matte produced in the smelting process. The product was to be sold to off-site refiners and the purified matte containing the platinum group metals was to be sent for additional hydrometallurgical refining. There would be no measurable increase in air pollutant emissions from the operation; therefore, a permit alteration was not required.

Permit #2635-03 was a modification issued April 15, 1994, which incorporated language to clarify the quality assurance requirements relative to the outlet SO₂ CEMS. This language was placed in Section II.D of the permit.

Permit #2635-04 was a modification issued on August 1, 1994, to clarify language in a previous permit analysis. Specifically, in the discussion on Permit #2635-02, language was deleted, which indicated that process gas streams would not be vented to the atmosphere. Originally, it was planned to vent internally the off-gas from the acid demister associated with the base metal refinery. However, due to its high moisture content, it was later determined these off-gases should be vented to the atmosphere. This does not change the original determination that there would be no measurable increase in air pollutant emissions associated with the base metal refinery.

Permit #2635-05 was issued on March 24, 1995. The permit was a modification to allow the processing of spent platinum and palladium catalyst (platinum group metals in a ceramic matrix). This material was considered within the concentrate throughput limitation so there would be no increase in allowable emissions.

Permit #2635-06 was issued final on August 5, 1998. The application proposed a second smelting circuit essentially the same as the existing smelter, but with an increased capacity of 100 tons per day of concentrate and/or Platinum Group Metal (PGM) catalyst. Stillwater installed similar particulate and SO₂ control measures, already demonstrated at the existing smelter.

In addition to the changes discussed above, increased refinement steps for copper and nickel, and an analytical laboratory were proposed at the base metals refinery circuit. The Department determined these changes did not require a permit pursuant to the Administrative Rules of Montana (ARM) 17.8.705.

The second smelting circuit resulted in an increase in emissions in tons per year of 73.4, 62.7, 62.6, 6.3, and 1.6 of SO₂, particulate matter (PM), particulate matter with an aerodynamic diameter of 10 microns (µm) or less (PM₁₀), oxides of nitrogen (NO_x), and carbon monoxide (CO), respectively. Total allowable emissions from the facility, including both Smelting Circuit #1 and #2, in tons per year, were approximately 96.2, 86.9, 85.9, 8.14, 1.94 of SO₂, PM, PM₁₀, NO_x, and CO, respectively.

The facility is not subject to the New Source Review - Prevention of Significant Deterioration (PSD) permitting program because Stillwater included federally enforceable limits in the permit reducing potential emissions below the PSD permitting threshold. Similarly, the facility accepted federally enforceable limits keeping permitted potential emissions below the Title V major source threshold. Permit #2635-06 included annual emission limits, an operational limit, and reporting requirements to verify that the facility's emissions are less than 100 tons per year of SO₂.

For the purpose of demonstrating compliance with the National Ambient Air Quality Standards (NAAQS) 3-hour SO₂ limit and the Montana Ambient Air Quality Standards (MAAQS) 1-hour SO₂ limit, Stillwater permitted SO₂ limits of 86 pounds per hour on smelting circuit #1 and 235 pound per hour on smelting circuit #2. In addition, the proposed 24-hour rolling average hourly emission rates of 24 pounds per hour of SO₂ for smelting circuit #1 and 50 pounds per hour of SO₂ for smelting circuit #2 demonstrated compliance with NAAQS and MAAQS. Therefore, these emission limits were incorporated into the permit.

Further, Stillwater proposed CEMS on the main stack of the #2 Smelting Circuit. The Department determined, at the time, CEMS were appropriate to demonstrate compliance with SO₂ emission limits on the main stacks for both smelting circuits.

Finally, the Department received a request from Stillwater to increase the throughput limitation on Smelting Circuit #1 from 10,950 to 11,500 tons per year. The Department agreed to increase Smelting Circuit #1's limitation. The SO₂ permitted potential emission rate from the facility is 96.16 tons per year. **Permit #2635-06** replaced Permit #2635-05.

On July 10, 2000, Stillwater submitted a complete permit application for the installation and operation of a natural gas-fired concentrate dryer in the Smelter and a natural gas-fired nickel-sulfate crystal dryer in the Base Metals Refinery. The concentrate dryer vents through the existing smelting circuit #1 baghouse and increases potential flow through the stack by 6000 acfm. Further, the nickel-sulfate crystal dryer in the Base Metals Refinery is utilized as a process application for the capture of product and required installation of a new 2000-acfm baghouse. Calculations indicating potential emissions from the proposed project are contained in the emission inventory in Section III of the permit analysis for Permit #2635-07.

In addition, Stillwater requested that the production limit of 11,500-ton/year throughput for smelting circuit #1 and the 37,050-ton/year throughput limit for smelting circuit #2, as stated in Permit #2635-06, be re-stated as a combined throughput production limit of 48,550 ton/year through Smelting Circuit #1 and Smelting Circuit #2. The new combined throughput limit was included in Section III.B.1. **Permit #2635-07** replaced Permit #2635-06.

On January 22, 2001, the Department received a letter from Stillwater requesting a Department determination on three separate issues regarding operations at the Columbus Smelter facility. These issues included the following:

- A request for removal of the SO₂ CEM requirement for smelting circuit #1 when only the concentrate dryer is venting through the circuit;
- A request for a de minimis determination for the construction and operation of a new 200-ton capacity dried concentrates silo; and
- A request for a need for permit determination to increase the capacity of the current bin baghouse located within the smelter building.

Under Permit #2635-07, Stillwater permitted the construction and operation of a concentrate dryer at the smelter facility. Concentrate dryer emissions vent through a baghouse and exit the Smelting Circuit #1 stack. Stillwater anticipates that in most instances the concentrate dryer will be the only source discharging through the Smelting Circuit #1 stack. The permitted SO₂ CEM requirement for Smelting Circuit #1 was in place for documenting SO₂ emissions during smelting operations that have significant potential process SO₂ emissions. Stillwater demonstrated, to the Department's satisfaction, that concentrate drying activities will not result in significant, if any, SO₂ emissions. Therefore, the Department removed the CEM requirement from Smelting Circuit #1 during times when the concentrate dryer is the only source venting through the circuit.

Further, as previously cited, Stillwater submitted a de minimis determination involving the construction and operation of a 200-ton capacity dried concentrates silo. The silo utilizes baghouse control. However, because potential uncontrolled emissions from the silo were less than 15 tons per year, the Department determined that construction and operation of the silo could be accomplished under the provisions of ARM 17.8.705 (1)(r). The Department added the dried concentrates silo as part of the permit action.

Finally, the bin baghouse vents directly into the smelter building and is utilized as a process/hygiene control device rather than an emission control device. Because the baghouse vents exclusively to the indoor atmosphere, the Department did not quantify emissions or incorporate these emissions into the air quality permit. **Permit #2635-08** replaced Permit #2635-07.

Based on compliance inspection findings in August of 2001, the Department sent Stillwater letters requesting information regarding several emitting units, currently operating at the facility, which are not included in the air quality permit. The Department's letters also indicated that Stillwater was permitted as a synthetic minor source of emissions as defined under the Title V Operating Permit program. Through various correspondence, and a subsequent site visit/inspection in August of 2002, the Department determined that, as permitted under Permit #2635-08, the total facility Potential To Emit (PTE) for PM₁₀ exceeded the Title V Operating Permit PTE threshold of 100 tons per year for PM₁₀.

Further, based on the Department's findings, Stillwater sent the Department a request for a permit modification to incorporate federally enforceable permit limits to bring the facility PM₁₀ PTE to a level below the Title V Operating Permit threshold for the purpose of maintaining Title V synthetic minor status. Specifically, the modification request proposed new emission limits for both the #1 and #2 Smelting Circuits and identified several emitting units that vent inside the building and are not counted toward the facility's PTE. Further, the request indicated that the flow rate for the Smelting Circuit #2 had increased from 75,000 actual cubic feet per minute (acfm) to 100,000 acfm. Also, the modification request included a demonstration that all of the un-permitted emitting units had been added to the facility in accordance with ARM 17.8.705(1)(r). Finally, Stillwater requested that Gypsum production/material handling and Smelter Slag production/material handling be added to the permit under ARM 17.8.705(1)(r).

The proposed limits brought the total facility PTE to a level below the Title V Operating Permit threshold for PM₁₀ allowing Stillwater to remain a Title V synthetic minor source. A total facility emission inventory demonstrating that emissions are less than the Title V Operating Permit threshold for all regulated pollutants was included in Section III of the permit analysis for Permit #2635-09. Further, the permit action incorporated all existing equipment into the permitted list of equipment at the facility. **Permit #2635-09** replaced Permit #2635-08.

On April 16, 2003, the Department received a complete permit application from Stillwater for proposed changes to the permitted facility. The permit action provided for the following changes to the existing permitted facility:

- An increase in the previously proposed and permitted (Permit #2635-09) operational limits on the production of gypsum and slag and the use of crushed rock to line the slag-pit under the provisions of ARM 17.8.745(1);
- A review and new determination of previous Best Available Control Technology (BACT) determinations requiring fabric filter baghouse control for various bins and silos contained in the smelter building (Permit #2635-06);
- A permit clarification of required control technology for the concentrate dryer operations at the facility;

- The addition of 2 natural gas-fired dryers to the Laboratory Sample Prep Area under the provisions of ARM 17.8.744(1)(c);
- The replacement of the existing and permitted revert cone crusher with a like-kind revert cone crusher under the provisions of ARM 17.8.745(1); and
- The incorporation of permit language to potentially allow for future off-permit “like-kind” replacement of various equipment to the permitted facility in accordance with ARM 17.8.745(1).

A complete emission inventory, including all proposed changes under the current permit action was contained in Section III of the permit analysis. Further, the required BACT analysis for the various bins and silos contained within the smelter building was contained in Section V of the permit analysis.

In addition, Stillwater provided the Department with comments on the preliminary determination. Based on the comments received, the Department made various changes to the permit. These changes were summarized in the current permit action discussion in Permit #2635-10. **Permit #2635-10** replaced Permit #2635-09.

On December 9, 2003, Stillwater submitted a letter clarifying an Administrative Amendment (AA) request that had been submitted on November 6, 2003. One purpose of this AA was to update Sections II.B.2 and 3 of the permit to identify all existing points that are ducted to the Smelting Circuit #1 and #2 air pollution control equipment. The other purpose was to clarify the procedure for handling and updating emission inventory (EI) information. The full EI for the facility and corresponding calculations would no longer be included in the analysis section of the permit. Stillwater will submit updated EI information as necessary and this information will be maintained in the company file. **Permit #2635-11** replaced Permit #2635-10.

On February 18, 2004, the Department received a request from Stillwater for an administrative amendment (AA) to Permit #2635-11. Specifically, the request involved modifying the catalyst and/or concentrate throughput processing limit in Section II.B.1 of Permit #2635-11 and modifying the corresponding allowable SO₂ limits contained in Section II.A.3 and II.A.4 of Permit #2635-11. Section II.A.3 was modified to combine the smelting circuit #1 and smelting circuit #2 SO₂ emission limits. Further, Section II.B.1 was modified to incorporate concentrate and catalyst specific process throughput limits. Finally, the permit action modified the testing requirement in Section II.C.2 to accommodate the combined SO₂ emission limit for Smelting Circuit #1 and Smelting Circuit #2.

In addition, in accordance with ARM 17.8.745 (de minimis rule), Stillwater proposed the addition of 5 new emission sources to the permitted facility including a concentrate/catalyst bagging and unloading system and four 175,000 Btu/hr space heaters to the new nickel sulfate solution tank and product storage building at the Base Metals Refinery. Because combined potential emissions from these newly proposed emission sources is less than 15 tons per year, addition of these units was accomplished in accordance with the de minimis rule. **Permit #2635-12** replaced Permit #2635-11.

On June 2, 2004, Stillwater submitted notification to the Department for the installation and operation of a 650-killowatt diesel-fired emergency/back-up generator at the Base Metals Refinery (BMR Emergency Generator). Based on the information provided in the notification and Department policy regarding the establishment of emergency generator PTE, the BMR Emergency Generator was added to the facility in accordance with the provisions of ARM 17.8.745.

Further, on June 22, 2004, the Department received a request from Stillwater for an AA to Permit #2635-12 for the purpose of adding an enforceable emergency generator operating limit for all affected units at the facility. The permit action added an operational limit of 500 hours during any rolling 12-month time period for each emergency generator at the Stillwater facility.

On July 28, 2004, Stillwater notified the Department by telephone of additional facility changes that would necessitate an AA. Stillwater asked the Department to halt issuance of the AA requested on June 22, 2004, until Stillwater submitted the additional request for further amendments. On August 5, 2004, the Department received the updated request for an AA. The following additional changes were incorporated under the AA:

- Removal of the soda ash silo for Smelting Circuit #1 from the facility operations and from the emission inventory;
- Correction of the emission inventory to establish the PTE of the baghouse controlled hydrated lime silo for Smelting Circuit #2; and
- Incorporation of a federally enforceable requirement for baghouse control on the existing Secondary Preparation Building crushing system for the purpose of accommodating future like-kind replacement of this equipment, should it become necessary.

Permit #2635-13 replaced Permit #2635-12.

On January 19, 2006, the Department received a request from Stillwater for an administrative amendment to Permit #2635-13 in accordance with the provisions of ARM 17.8.764. The requested changes included two separate and distinct projects at the Base Metals Refinery and the Precious Metals Smelter (Smelter), respectively. At the Base Metals Refinery, the changes include the addition of permit language allowing for future off-permit like-kind affected equipment replacement and the addition of new equipment under the provisions contained in ARM 17.8.745.

At the Precious Metals Smelter, Stillwater requested the decommissioning and removal of various existing equipment including the Old Furnace, the top-blown rotary converters (TBRC), and associated equipment within smelting circuit #1. Removal of this equipment resulted in the cessation of smelting activities in smelting circuit #1 and the following changes to the permit:

- “Smelting circuit #1” reference was changed to “concentrate dryer and revert crushing circuit”;
- “Smelting circuit #2” reference was changed to “smelting circuit”.

Further, the Department amended the permit to include updated permit language in Section II.D, Monitoring and Reporting Requirements, for affected rolling 12-month reporting requirements. **Permit #2635-14** replaced Permit #2635-13.

C. Current Permit Action

On July 18, 2007, the Department received a complete application from Stillwater for the modification of Permit #2635-14. Specifically, Stillwater proposed the following changes under the current permit action:

- Installation and operation of a second electric furnace within the Precious Metals Smelter (Smelter);
- Installation and operation of associated bins and material transfer equipment to accommodate operation of the proposed second furnace within the Smelter;

- Control of four existing and previously uncontrolled open-top feed bins within the Smelter for the purpose of capturing and recovering any residual dust which may contain precious metal product. The affected units will be controlled by the existing Smelter emission control equipment; and
- Revision of existing permit language and terminology used in the current permit to accurately reflect the proposed modifications.

The requested permit modification will not increase allowable emissions of any regulated pollutant from the permitted facility as each proposed new emitting unit will be vented through existing and permitted emission control equipment and all existing and affected material throughput limits will remain the same under the current permit action. The following changes to Permit #2635-14 were accomplished under the current permit action:

- Section II.B.1: The “Platinum Group Metal (PGM) Catalyst” throughput reference was renamed the “Precious Metal-Bearing Recyclable Materials” throughput to more accurately reflect Stillwater’s recycling activities.
- Section II.B.3: The following seven additional sources were added to the list of sources that are required to be vented through the smelting circuit main stack and associated emission control equipment (baghouse and scrubber): New Furnace Number 2 (including 10 hoods); Original TBRC Slag Bin; Original Recyclable Materials/Reverts/Iron Residue Bin; EF Matte Feed Bins (2); New TBRC Slag Bin; and the New Recyclable Materials/Reverts/Iron Residue Bin. In addition the “Furnace Number 2” reference was re-named “Original Furnace Number 2”, for clarification.
- Section II.D.3: The “PGM Catalyst” throughput reference was renamed the “Precious Metal-Bearing Recyclable Materials” throughput to more accurately reflect Stillwater’s recycling activities.
- Section III.D.6: The “slag pit” reference was re-named “slag pits” to account for both slag collection and cooling areas to accommodate both the existing and newly proposed electric furnaces.

Comments on Department’s Preliminary Determination (PD) on Permit #2635-15

On August 27, 2007, the Department received comments from Stillwater on the Department’s PD on Permit #2635-15. Specifically, under the current permit action, Stillwater proposed the control of four existing and previously uncontrolled open-top feed bins within the Smelter for the purpose of capturing and recovering any residual dust which may contain precious metal product. However, due to scheduling and construction conflicts, Stillwater will not be able to accommodate this proposed change at this time. Because the affected units constitute existing and previously permitted equipment and the subject control requirement does not constitute BACT, removal of the requirement to control the affected units can be accomplished through the comment process. Therefore, the Department has modified Section II.B.3 to remove the requirement for control of the subject units.

In addition, Stillwater provided comment on the following updates/administrative errors contained in the Department’s PD on Permit #2635-15:

- *Permit #2635-15, Section II.D.3.* The “PGM Catalyst” reference should be re-named “precious metal-bearing recyclable material”, to be consistent with the current permit action.

- *Permit Analysis, Section I.A.* The “Concentrate Dryer (30 ton)” emitting unit should be identified as “Concentrate Dryer”.
- *Permit Analysis, Section I.A.* The “Refinery Emergency Generator” should be removed as the “BMR Emergency Generator” replaced this unit in 2004.
- *Permit Analysis, Section I.A.* The “Steam Generator (15 MMBtu/hr)” is the same unit as the “New Natural Gas Fired Boiler (15 MMBtu/hr)”.
- *Permit Analysis, Section I.A.* The “Fire Assay Area Fume Hoods (6)” should identify 13 hoods vented through the Fire Assay Area Baghouse.
- *Permit Analysis, Section I.A.* The “Sample Preparation Dryer #1” emitting unit vents to a stack and not inside the building.
- *Permit Analysis, Section I.A.* The “Sample Preparation Dryer #2” emitting unit vents to a stack and not inside the building.
- *Permit Analysis, Section I.A.* The “Sample Preparation Area Fume Hoods (4)” should identify 9 hoods vented through the Sample Preparation Area Baghouse.
- *Permit Analysis, Section I.A.* The “Dust Bin” emitting unit vents to an indoor stack.
- *Permit Analysis, Section I.A.* The “Secondaries/Iron Residue Bin” emitting unit should be re-named “Recyclable Materials/Reverts/Iron Residue Bin” to be consistent with the current permit action.
- *Permit Analysis, Section I.A.* The “EF Matte Bin” emitting unit should identify 2 bins within the smelting circuit.
- *Permit Analysis, Section I.A.* The “Circular Refinery Building Heater” should be removed as it has been physically removed from the facility.
- *Permit Analysis, Section I.A.* The “Secondary Preparation Building” emitting unit should be changed to the “Secondary Preparation Building Baghouse” to more accurately identify the control system.
- *Permit Analysis, Section I.A.* The “Refinery Laboratory Scrubbers (2)” emitting unit should identify 3 scrubbers.

The preceding list of administrative changes/updates have been made to the permit prior to issuance of the Department’s decision. **Permit #2635-15** replaces Permit #2635-14.

D. Additional Information

Additional information, such as applicable rules and regulations, BACT determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit identified above.

II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the operation. The complete rules are stated in the ARMs 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 includes 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 Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).
4. ARM 17.8.110 Malfunctions. (2) 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 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.222 Ambient Air Quality Standard for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

Stillwater shall 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 to an 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. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne PM. (2) Under this rule, Stillwater shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne PM.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere PM caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
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 British thermal unit (MMBtu) fired.
6. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). Stillwater is considered an NSPS-affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

40 CFR 60, Subpart LL - Standards of Performance for Metallic Mineral Processing Plants is applicable to the facility because the facility meets the definition of a metallic mineral processing plant and was constructed after August 24, 1982. The facility is subject to PM and opacity emission standards and monitoring requirements on the scrubber. Further, the facility is subject to NSPS PM limits for the concentrate dryer and the dried concentrates silo.

40 CFR 60, Subpart P - Standards of Performance for Primary Copper Smelters relating to the CEMS have been incorporated into the permit. However, Subpart P is not directly applicable to this facility because it does not meet the definition of a primary copper smelter. Stillwater's smelter is sized and designed to process platinum group metals and only produces copper as a by-product.

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.

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 submitted the required permit application fee of \$500 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. This 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 facility to obtain an air quality permit or permit modification if they construct, alter or use any air contaminant sources that have a PTE greater than 25 tons per year of any pollutant. Stillwater has a PTE greater than 25 tons per year of PM₁₀, SO₂, and NO_x; therefore, an air quality 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. On July 18, 2007, Stillwater submitted a complete 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 July 19, 2007, issue of the *Stillwater County News*, a newspaper of general circulation in the Town of Columbus in Stillwater County, Montana, 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. A BACT determination was made for the proposed project, a summary of the BACT determination is contained 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 facility is not a major stationary source since this facility is not a listed source and the facility's PTE is less than 250 tons per year of any pollutant (excluding fugitive emissions).
- G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, 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 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one Hazardous Air Pollutant (HAP), or PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year 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 Air Quality Permit #2635-15 for Stillwater, the following conclusions were made:
 - a. The facility's permitted PTE is less than 100 tons/year for any pollutant;
 - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year for all HAPs;
 - c. This source is not located in a serious PM₁₀ nonattainment area;
 - d. This facility is subject to 40 CFR 60, Subpart LL and 40 CFR 60, Subpart P, as applicable;
 - 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.
 - h. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations that limit the source's PTE.
 - i. In applying for an exemption under this section, the owner or operator of the source shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.
 - ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

Stillwater's Permit #2635-15 includes federally enforceable conditions limiting emissions to less than the Title V Operating Permit threshold. Therefore, the facility is considered a synthetic minor source of emissions, as defined under the Title V Operating Permit Program, and is not required to obtain a Title V Operating Permit. The Department determined that the annual reporting requirements contained in the permit are sufficient to monitor this requirement.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal required by ARM 17.8.1204(3) shall contain

certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

III. BACT Determination

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

Under the current permit action, Stillwater proposed the installation and operation of a second electric furnace within the Smelter. In addition to the proposed electric furnace, the project would include the installation and operation of associated material storage bins and material transfer equipment to accommodate operation of the proposed electric furnace.

The requested permit modification will not increase allowable emissions of any regulated pollutant from the permitted facility as Stillwater has proposed to vent emissions from each proposed new emitting unit through existing smelting circuit emission control equipment, which includes a fabric-filter baghouse for particulate control and a scrubber for SO₂ control. Allowable particulate and SO₂ emissions applicable to the affected Stillwater operations were previously established using a grain loading limit and a maximum air-flow capacity applicable to the existing smelting circuit fabric-filter baghouse and throughput limits on the amount of concentrate and precious metals containing recyclable materials. Stillwater has proposed to maintain the applicable grain loading limit for the existing smelting circuit fabric-filter baghouse and the affected material throughput limits will remain unchanged under the current permit action. Further, no additional gaseous emissions (NO_x, CO, and VOC) will result from the proposed project as the project does not include any additional fuel combustion, rather, the electric furnace will be powered by electricity.

Fabric-filter baghouse particulate control and SO₂ scrubbers represent highly effective emission controls. Because Stillwater has proposed to control emissions from the proposed project by venting all emissions through existing and highly effective emission control equipment and because the project will not result in any increase in allowable emissions from the Stillwater facility, the Department determined that the existing emission controls and the emission limits applicable to the affected processes constitute BACT, in this case. Further, since requiring additional and redundant emission controls would not result in any additional environmental benefit through the reduction in allowable emissions, the Department determined that the requirement for additional and redundant particulate and SO₂ emission control would be cost prohibitive and does not constitute BACT, in this case.

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.

IV. Emission Inventory

Permit #2635-15 Emission Inventory						
Source	tons/year					
	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
New Furnace Number 2 (10 hoods)	Emissions accounted for in Smelting Circuit process at Main Stack					
New TBRC Slag Bin	Emissions accounted for in Smelting Circuit process at Main Stack					
New Recyclable Materials/ Reverts/Iron Residue Bin	Emissions accounted for in Smelting Circuit process at Main Stack					
Original TBRC Slag Bin	Emissions accounted for in Smelting Circuit process at Main Stack					
Original Recyclable Materials/ Reverts/Iron Residue Bin	Emissions accounted for in Smelting Circuit process at Main Stack					
EF Matte Feed Bins (2)	Emissions accounted for in Smelting Circuit process at Main Stack					
Total Emissions Permit #2635-15	0.00	0.00	0.00	0.00	0.00	0.00

Emissions Reduction Permit #2635-15 (ventilation of previously uncontrolled bins)	-0.19	-0.09	0.00	0.00	0.00	0.00
Existing Facility PTE	49.99	73.50	84.46	45.01	25.06	5.55
Total Facility PTE	49.99	73.50	84.46	45.01	25.05	5.55
Facility-Wide Emission Inventory^a						
Existing Potential To Emit (PTE)	ton/yr^b					
General Source Categories	PM	PM₁₀	SO₂	NO_x	CO	VOC
Precious Metals Smelter	40.49	62.91	82.21	26.84	14.99	1.17
Base Metals Refinery	1.16	2.24	1.81	14.19	8.27	0.62
Analytical Lab	8.34	8.34	0.44	3.97	1.79	3.76
TOTAL FACILITY	49.99	73.50	84.46	45.01	25.05	5.55
^a A complete emission inventory (individual emission sources) for the Stillwater facility operations is on file with the Department. ^b Emission Calculations based on an annual smelting circuit concentrate throughput of 37,550 and precious metals bearing recyclable materials throughput of 11,000 ton/yr.						

V. Existing Air Quality

Stillwater's facility is located in Stillwater County, Montana. Stillwater County is currently classified as attainment/unclassified for all NAAQS. The current permit action does not result in any increase in allowable emissions; therefore, the Department determined that the current permit action will not result in any impact to the existing air quality of the area.

VI. Ambient Air Impact Analysis

Because the current permit action does not result in any increase in allowable emissions, the Department determined that the current permit action will not result in an exceedance of the MAAQS/NAAQS.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

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

Permit Analysis Prepared By: M. Eric Merchant
Date: July 30, 2007

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Stillwater Mining Company
Columbus Metallurgical Complex
P.O. Box 1209
Columbus, MT 59019

Air Quality Permit Number: 2635-15

Preliminary Determination Issued: August 13, 2007

Department Decision Issued: August 29, 2007

Permit Final: September 14, 2007

- 1. Legal Description of Site:* Stillwater operates a platinum group precious metals smelter and base metals refinery in Columbus, Montana. The legal description of the site is Section 27, Township 2 South, Range 20 East, Stillwater County, Montana.
- 2. Description of Project:* Under the current permit action, Stillwater proposed the following changes: the installation and operation of a second electric furnace within the Smelter; the installation and operation of associated bins and material transfer equipment to accommodate operation of the proposed second electric furnace within the Smelter; the control of four existing and currently uncontrolled open-top feed bins within the Smelter for the purpose of capturing and recovering any residual dust which may contain precious metal product. The affected units would be controlled by the existing Smelter emission control equipment.

The requested permit modification would not increase allowable emissions of any regulated pollutant from the permitted facility as each proposed new emitting unit would be vented through existing and permitted emission control equipment and all existing and affected material throughput limits would remain the same under the current permit action.
- 3. Objectives of Project:* The proposed project would increase business, revenue, and operational flexibility for the company and the permitted facility.
- 4. Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the Montana Air Quality Permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because HPL 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 BACT analysis, is included in Permit #2635-15.

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 would be reasonably necessary to ensure compliance with applicable requirements and to demonstrate compliance with those requirements and would 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 Department has prepared the following comments.

A. Terrestrial and Aquatic Life and Habitats

The proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, any increase in actual emissions from the proposed project may have a minor impact on terrestrial and aquatic life and habitats in the proposed project area. However, as discussed in Section V and Section VI of the permit analysis and Section 7.F of this EA, any emissions and resulting impacts from the project would be minor due to the low concentration of those pollutants emitted.

Further, the proposed project is within an existing facility and no new construction or ground disturbance to the area would be required. Overall, any impact to the terrestrial and aquatic life and habitats of the proposed project area would be minor and consistent with existing impacts.

B. Water Quality, Quantity, and Distribution

The proposed project would not affect water quantity or distribution in the proposed project area. The proposed project is within an existing facility and no new construction or ground disturbance to the area would be required. Further, the project would not discharge or use water as part of normal operations.

The proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, any increase in actual emissions from the proposed project may have a minor

impact on water quality in the proposed project area. However, as discussed in Section V and Section VI of the permit analysis and Section 7.F of this EA, any emissions and resulting deposition impacts from the project would be minor due to the low concentration of those pollutants emitted. Overall, any impacts to the water quality, quantity, and distribution of the project area would be minor and consistent with existing impacts.

C. Geology and Soil Quality, Stability, and Moisture

The proposed project would not impact the geology, soil quality, stability, and moisture of the proposed project area. The proposed project is within an existing facility and no new construction or ground disturbance to the area would be required.

Further, the proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, the proposed project may result in a minor increase in actual emissions to the outside ambient environment. These pollutants may deposit on the soils in the surrounding area. Any impact from deposition of these pollutants would be minor due to dispersion characteristics and the low concentration of those pollutants emitted. Overall, any impacts to the geology and soil quality, stability, and moisture of the project area would be minor and consistent with existing impacts.

D. Vegetation Cover, Quantity, and Quality

The proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, any increase in actual emissions from the proposed project may have a minor impact on vegetation cover, quantity, and quality in the proposed project area. However, as discussed in Section V and Section VI of the permit analysis and 7.F of this EA, any emissions and resulting impacts from the project would be minor due to dispersion characteristics of pollutants and the atmosphere, and the low concentration and magnitude of those pollutants emitted.

Further, the proposed project is within an existing facility and no new construction or ground disturbance to the area would be required. Overall, any impact to the vegetation cover, quantity, and quality of the proposed project area would be extremely minor.

E. Aesthetics

No impacts would result on the aesthetic value of the area from this project because the facility is an existing facility. The proposed project would not impact the industrial nature of the facility; therefore, the aesthetics of the area would remain consistent with existing impacts.

F. Air Quality

The proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, any increase in actual emissions from the proposed project may have a minor impact on air quality in the area. However, the Department believes that the emissions would exhibit good dispersion characteristics resulting in relatively low deposition impacts. The impacts from deposition of pollutants would be minor due to dispersion characteristics of pollutants (stack height, stack temperature, etc.) and atmosphere (wind speed, wind direction, ambient temperature, etc.). The amount of air concentration of pollutants would be relatively small, and the corresponding deposition of those air pollutants would be minor.

The Department determined that controlled emissions from the source will not cause or contribute to a violation of any ambient air quality standard. Therefore, any impacts to air quality from the proposed project would be minor and consistent with existing impacts.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The proposed project would include the installation and operation of equipment that could result in a minor increase in actual emissions from the existing industrial source of air pollution. Since the proposed changes would occur at an existing industrial site, the Department determined that any impacts to any existing unique endangered, fragile, or limited environmental resource due to the potential for a minor increase in deposition of air pollutants associated with the proposed project would be minor and consistent with current impacts. Overall, any impact to any existing unique endangered, fragile, or limited environmental resource in the proposed project area would be minor and consistent with existing impacts.

H. Demands on Environmental Resources of Water, Air, and Energy

The proposed project would result in minor impacts on the demand for the environmental resource of air due to the potential for a minor increase in actual emissions from the proposed facility. Further, increased operations at the facility may result in a minor increase in the demand for energy to supply power to the facility to accommodate the proposed new operations. However, the proposed project would not be expected to have any impacts on the demand for the environmental resource of water. Overall, any impacts on the demands for the environmental resources of water, air, and energy would be minor and consistent with existing impacts.

I. Historical and Archaeological Sites

The proposed project would not result in any impacts to any existing historical and archaeological sites in the proposed project area because the proposed new equipment would operate within an existing industrial area and would not require any additional ground-disturbing construction activities. According to previous correspondence from the Montana State Historic Preservation Office, there is low likelihood of any disturbance to any known archaeological or historic site, given previous industrial disturbance within a given area. Therefore, the Department determined that the proposed project would not impact any existing historical or archaeological site.

J. Cumulative and Secondary Impacts

Overall, any cumulative or secondary impacts to the above-cited physical and biological resource of the human environment of the project area would be minor because the proposed project would not result in any increase in allowable emissions from the Stillwater facility and any increase in actual emissions would be minor. Further, the proposed new equipment would result in similar impacts to those impacts created by the existing equipment and the overall industrial nature of the area would not change as a result of the proposed project. Therefore, any cumulative and secondary impacts resulting from the proposed project would be minor and consistent with existing impacts.

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
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

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) or impact the cultural uniqueness and diversity of the area because the proposed project would not change the current industrial nature of the operation or the overall industrial nature of the area of operation. The predominant use of the surrounding area would not change as a result of the proposed project. The proposed modification of the Stillwater facility would be consistent with the current industrial use of the previously permitted facility and any impacts to the traditional lifestyles or communities (social structures or mores) or impact the cultural uniqueness and diversity of the area would be consistent with existing impacts.

- C. Local and State Tax Base and Tax Revenue

The proposed project would result in minor impacts to the local and state tax base and tax revenue because relatively few or no new employees would be needed as a result of the proposed project. Further, the proposed project would necessitate relatively little construction and typically would not require an extended period of time for completion; therefore, any construction related jobs would be temporary and any corresponding impacts on the tax base/revenue of a given area would be minor. Overall, any impacts to the local and state tax base and tax revenue would be minor.

- D. Agricultural or Industrial Production

The proposed project would not displace or otherwise affect any agricultural land or practices because the proposed project would take place within an existing building at an existing industrial site used for industrial not agricultural purposes.

E. Human Health

The proposed project would not result in any increase in allowable emissions from the Stillwater facility; however, the proposed project may result in a minor increase in actual emissions to the outside ambient environment. Therefore, the proposed project may result in minor, if any, impacts to human health. As explained in Section 7.F of this EA, deposition of pollutants would occur; however, the Department determined that the proposed project would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health. Overall any impacts to human health would be minor and consistent with existing impacts.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not impact any access to recreational and wilderness activities because the proposed project would occur at an existing industrial facility used for such purposes.

G. Quantity and Distribution of Employment

H. Distribution of Population

The proposed project would have minor, if any, impacts on the quantity and distribution of employment and the distribution of population in the area because relatively few, if any, additional employees would be required for modified operations at the facility thereby resulting in relatively little, if any, new immigration into or emigration out of the area. In addition, temporary construction-related positions would result from this project but any impacts to the quantity and distribution of employment from construction related employment would be minor due to the relatively small size of the facility and the relatively short time period that would be required for constructing the proposed facility changes. Overall, any impacts to the quantity and distribution of employment and the distribution of population in the area would be minor.

I. Demands for Government Services

The proposed project would result in minor impacts on the demands for government services because additional time would be required by government agencies to issue Permit #2635-15 and to assure compliance with applicable rules, standards, and conditions contained in Permit #2635-15. In addition, there would be minor impacts on the demands for government services to regulate the minor increase in vehicle traffic that would be associated with constructing and operating the proposed new equipment. The increase in vehicle traffic would be primarily during facility construction. Overall, any demands for government services to regulate the modified facility would be minor due to the existing industrial nature of the facility.

J. Industrial and Commercial Activity

The proposed project would change various aspects of the previously permitted Stillwater operations but would not result in an overall change in facility purpose; therefore, the proposed project would not impact any industrial or commercial activity in the area beyond those impacts already realized through previously permitted Stillwater operations.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals in the area. The permit would ensure compliance with state standards and goals. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Cumulative and secondary impacts from the proposed project would result in minor impacts to the economic and social aspects of the human environment in the immediate area of operations. Due to the similar nature of the proposed project as related to existing Stillwater operations, there would be relatively little foreseeable change in the industrial production, employment, and tax revenue (etc.) impacts resulting from the proposed project. In addition, the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #2635-15. Overall, any cumulative and secondary impacts on the economic and social aspects of the human environment in the immediate area of operations would be minor and consistent with existing impacts.

Recommendation: An Environmental Impact Statement (EIS) is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: There are no significant impacts resulting from the project; therefore, an EIS is not required.

Other groups or agencies contacted or which may have overlapping jurisdiction: Department of Environmental Quality - Permitting and Compliance Division (Air Resources Management Bureau and Industrial and Energy Minerals Bureau); Montana Natural Heritage Program; and the State Historic Preservation Office (Montana Historical Society).

Individuals or groups contributing to this EA: Department of Environmental Quality (Air Resources Management Bureau), Montana Natural Heritage Program, and State Historic Preservation Office (Montana Historical Society).

EA prepared by: M. Eric Merchant
Date: July 30, 2007