



Montana Department of  
**ENVIRONMENTAL QUALITY**

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January 5, 2012

Dave Johnson  
Stillwater Mining Company  
Columbus Metallurgical Complex  
P.O. Box 1209  
Columbus, MT 59019

Dear Mr. Johnson:

Montana Air Quality Permit #2635-16 is deemed final as of January 5, 2012, by the Department of Environmental Quality (Department). This permit is for a precious metals smelter and base metals refinery. 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

Doug Kuenzli  
Environmental Science Specialist  
Air Resources Management Bureau  
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VW:DCK  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #2635-16

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

January 5, 2012



## MONTANA AIR QUALITY PERMIT

Issued to: Stillwater Mining Company MAQP: #2635-16  
Columbus Metallurgical Complex Administrative Amendment (AA)  
P.O. Box 1209 Request Received: 07/08/11  
Columbus, MT 59019 Department Decision on AA Issued: 12/20/2011  
Permit Final: 01/05/2012  
AFS #095-0002

A Montana Air Quality Permit (MAQP), 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

The current permit action is an administrative amendment of Stillwater's MAQP to incorporate multiple de minimis notifications proposed to the Department of Environmental Quality (Department). A detailed description of improvements and additions at the Columbus Metallurgical Complex is provided within Section I.D of the permit analysis. In addition this administrative action updates current permit language and rule references used by the Department.

### SECTION II: Limitations and Conditions

#### A. Emission Limitations

1. 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).
2. Stillwater 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).
3. Stillwater shall treat all unpaved portions of haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.2 (ARM 17.8.749).
4. Stack emissions from any 40 Code of Federal Regulation (CFR) 60, Subpart LL affected facility, not discharged from a wet scrubber, are subject to an opacity limitation of 7% (ARM 17.8.340 and 40 CFR 60, Subpart LL).

5. Process fugitive emissions from any 40 CFR 60, Subpart LL affected facility are subject to an opacity limitation of 10% (ARM 17.8.340 and 40 CFR 60, Subpart LL).
6. Particulate emissions from the smelting circuit and the concentrate drying circuit shall each be controlled by a baghouse. Particulate emissions shall be limited to 0.011 grains per dry standard cubic foot (gr/dscf) for each circuit. This emission limitation applies at the main stack of each circuit (ARM 17.8.749, ARM 17.8.752, and ARM 17.8.1204).
7. Sulfur dioxide (SO<sub>2</sub>) 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.
8. 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).
9. 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).
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) or 0.022 gr/dscf (ARM 17.8.340 and 40 CFR 60, Subpart LL).
11. Particulate matter emissions from the revert crushing system shall be controlled by a baghouse. The revert crushing system includes a jaw crusher, cone crusher, and transfer points for a material handling station. Particulate matter emissions shall be limited to 0.05 g/dscm or 0.022 gr/dscf (ARM 17.8.340 and 40 CFR 60, Subpart LL).
12. Particulate matter emissions from the precious metal bearing recyclable material (PMBRM) crushing system and associated equipment shall be controlled by baghouse(s). PMBRM crushing system includes a 15-ton primary feed bin, upstream vibrating pan feeder, mag belt conveyor, conveyor discharge to SCC cutter and downstream vibrating pan feeder to process spent automotive catalyst (Crushing and Sampling System); a surge hopper, vibrating pan feeder, vibrating screen and bag filling station to process petroleum catalyst (Direct Feed System).. Particulate matter emissions shall be limited to 0.05 g/dscm or 0.022 gr/dscf (ARM 17.8.340 and 40 CFR 60, Subpart LL).
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 PM<sub>10</sub> 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 PM<sub>10</sub> emissions shall be approved by the Department and shall incorporate the emission limits contained in Section II.A.6 (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 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 8 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
3. Gypsum production shall be limited to 25,000 tons during any rolling 12-month time period (ARM 17.8.749).
4. Smelter slag production shall be limited to 60,000 tons during any rolling 12-month time period (ARM 17.8.749).
5. 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).
6. 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).
7. 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 (ARM 17.8.340 and 40 CFR 60, Subpart LL).
8. Stillwater shall comply with all applicable standards and limitations, and the reporting, recordkeeping, monitoring, and notification requirements of 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (ARM 17.8.340 and 40 CFR 60, Subpart Dc).

C. Testing Requirements

1. Stillwater shall conduct particulate and opacity performance source tests on the smelting circuit main stack to demonstrate compliance with the applicable emission limit(s) in Section II.A.1 Section II.A.6. The compliance source testing shall be conducted on the smelting circuit stack 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 particulate and opacity performance source tests on the concentrate drying circuit main stack to demonstrate compliance with the applicable emission limit(s) in Section II.A.4 Section II.A.6. The compliance source testing shall be conducted on the concentrate drying circuit stack 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).
3. Stillwater shall conduct SO<sub>2</sub> performance source testing on the smelting circuit stack to monitor compliance with the emission limit in Section II.A.7.a. The compliance source testing shall be conducted every 5 years or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.749 and ARM 17.8.105).
4. 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.9. The compliance source testing shall be conducted every 5 years or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.749).
5. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
6. The Department may require further testing (ARM 17.8.105).

D. Operational 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.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date require in the emission inventory request. 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 the ***addition of a new emission unit***, 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. 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. All records compiled in accordance with this permit must be maintained by Stillwater as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).
4. 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).
5. 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.3. 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 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.4. 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 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.5. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
8. Stillwater shall document, by month, the PM<sub>10</sub> emissions from the facility. By the 25th day of each month, Stillwater shall total the PM<sub>10</sub> 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 PM<sub>10</sub> 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).
9. 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.6. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

10. 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. Continuous Emission Monitoring Systems

1. A Continuous Emissions Monitoring System (CEMS) to monitor stack volumetric flow rate and record SO<sub>2</sub> emissions discharged to the atmosphere shall be installed and operated on the smelting circuit to demonstrate compliance with Section II.A.7 of this permit (ARM 17.8.749).
2. 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).

F. 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).

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 (continuous emission monitoring systems (CEMS)/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 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).

Montana Air Quality Permit (MAQP) Analysis  
 Stillwater Mining Company – Columbus Metallurgical Complex  
 MAQP #2635-16

I. Introduction/Process Description

A. Permitted Equipment

Stillwater Mining Company – Columbus Metallurgical Complex (Stillwater) operates the following equipment, and emission points, in the processing of metallic minerals to recover platinum group precious metals;

Emission Source	Control Equipment	Exhaust Termination
<b>SMELTER</b>		
Original Electric Furnace #2 Emissions (Smelting Circuit)	Smelting Circuit Baghouse/Scrubber	Smelting Circuit Stack
Granulator Tipping Station Hood (Smelting Circuit)		
TBRC 2-1		
TBRC 2-2		
TBRC 2-3		
EF Matte/TBRC Slag Dryer (Smelting Circuit)		
TBRC Matte Dryer (Smelting Circuit)		
New Electric Furnace #2 Emissions (Smelting Circuit)		
New TBRC Slag Bin (Smelting Circuit)		
New Recyclable Materials/Reverts/Iron Residue Bin (Smelting Circuit)		
Concentrate Dryer	North Baghouse #1	Concentrate Drying Circuit Stack
Recyclable Material Mixer/Blender (Concentrate Drying Area)		
Recyclable Material Sample Preparation Room (Old Smelting Circuit #1)		
Recyclable Material Transfer Area/Enclosure		
Hydrated Lime Silo (Old Smelting Circuit #1)	Bin Vent Baghouse	Vents Outside Building
30-Ton Wet Concentrate Dryer Feed Hopper	N/A	Vents Inside Building
Dried Concentrates Silo (200-Ton)	Bin Vent Baghouse	Vents Outside Building
Hydrated Lime Silo (Smelting Circuit)	Bin Vent Baghouse	Vents Outside Building
Limestone Flux Bin (Smelting Circuit)	Vents to Dust Bin	Vents Inside Building
Dust Bin (Smelting Circuit)	Bin Vent Baghouse	Vents Inside Building
40-Ton Dried Concentrates Bin (Smelting Circuit)	Bin Vent Baghouse	Vents Inside Building
Original Recyclable Materials/Reverts/Iron Residue Bin (Smelting Circuit)	N/A	Vents Inside Building
Original TBRC Slag Bin (Smelting Circuit)	N/A	Vents Inside Building
Pebble Lime Feed Systems (Smelting Circuit) [2]	N/A	Vents Inside Building
EF Matte Bins (Smelting Circuit) [2]	N/A	Vents Inside Building
Dried EF Matte Collection Garbros (Smelting Circuit)	N/A	Vents Inside Building
Dried TBRC Slag Collection Garbros (Smelting Circuit)	N/A	Vents Inside Building
Dried TBRC Matte Collection Bin (Smelting Circuit)	N/A	Vents Inside Building
Granulator	N/A	N/A
Revert Crushing Area/Building Baghouse	Revert Crushing Area Baghouse	Vents Inside Building
Waste Ore Dump and Handling (Slag Pit Liner)	N/A	Fugitive Emissions
Smelter Slag Material Transfer	N/A	Fugitive Emissions
Gypsum Dumping and Loading	N/A	Fugitive Emissions
Smelter Diesel Fired Emergency Generator #1 (800 kW)	N/A	Engine Stack
Smelter Diesel Fired Emergency Generator #2 (600 kW)	N/A	Engine Stack
Moffit Indoor Smelter Building Heater	N/A	Vents Outside Building
Reznor Make-Up Air Heater (Concentrate Drying Area)	N/A	Vents Outside Building
Concentrate/Catalyst Bagging and Unloading System	Baghouse	Vents Inside Building
Relocated Baghouse/Vacuum System (Unloading System)	Baghouse	Vents Inside Building
Drum Dumping System (Smelting Circuit)	N/A	Vents Inside Building
Misc. Material Screening Station (Revert Crushing Area)	N/A	Vents Inside Building
2-Point Rotating Tube Sampler (Old Revert Crushing Area)	N/A	Vents Inside Building

<b>Emission Source</b>	<b>Control Equipment</b>	<b>Exhaust Termination</b>
12-Point Rotating Table Sampler (Smelter Material Handling Area)	N/A	Vents Inside Building
Process Feed Transfer Bin and Vacuum Exhauster	N/A	Vents Inside Building
Precious Metal-Bearing Recyclable Material Feed Chute	N/A	Vents Inside Building
15-Ton Recyclable Material Product Bins [2]	Bin Vent Baghouse	Vents Inside Building
Metallurgical Coke Addition (Drum Dumping System)	N/A	Vents Inside Building
Precious Metal-Bearing Recyclable Material Crushing System	PMBRM Baghouse(s)	Vents Inside Building
Drum Dumping System (Recyclable Material)	N/A	Vents Inside Building
Large Sample Prep Equipment System	Sample Prep Area Baghouse (L)	Vents Inside Building
Small Sample Prep Equipment System	Sample Prep Area Baghouse (S)	Vents Outside Building
Conveyor Belt Systems (Automated Sample Prep System) [2]	N/A	N/A
Electric Muffle Furnace (Automated Sample Prep Area) [4]	N/A	Vents Outside Building
X-Ray Detectors (Automated Sample Prep System) [4]	N/A	N/A
Pellet Press for Smelter Daily Samples (Revert Crushing Building)	N/A	Vents Inside Building
Electric Test Furnace	N/A	Vents Outside Building
Silica Sand Media Addition (Automated Sample Prep Area)	N/A	Vents Inside Building
LECO C-230 Carbon Determinator (Automated Sample Prep Area)	N/A	Vents Outside Building
<b>BASE METALS REFINERY (BMR)</b>		
BMR Tower Mill Feed Hopper	N/A	Vents Inside Building
NSC Dryer Process	NSC Baghouse	Independent Stack
Nickel Sulfate Bagging Unit	Bagger Baghouse	Independent Stack
New Natural Gas Fired Boiler (15 MMBtu/hr)	NA	Independent Stack
Refinery Diesel Fired Emergency Generator (650 kW)	N/A	Engine Stack
Tower Mill	Refinery Main Scrubber	Refinery Stack
Nickel Atmospheric Leach (NAL) Circuit [9 tanks]		
Iron Removal Tanks (2)		
Nickel Solution and Solution Surge Tanks (2)		
Nickel Crystal Evaporator Condensate Tank		
Polish Autoclave Feed Tanks (2)		
Polish Filter and Filtrate Tanks (3)		
Vertical Autoclave Discharge Tank		
Copper Dissolve Circuit [4 tanks, 2 sample stations]		
Copper Electrowinning (E.W.) Circuit [5 tanks]		
Process Water Tank		
Scrubber Water and Thickener Tanks (2)		
Security Area Electric Dryers (3)	Refinery Main Scrubber	Independent Stack
Security Area Portable Hopper	Security Area Baghouse	Vents Inside Building
Security Area Delumper		
Security Area Surge Hopper		
Security Area Pin Mill w/ Feed Screw		
Security Area Mixer/Blender		
Security Area Sample Preparation Dust Hood		
Copper Electrowinning Cells (10)	E.W. Scrubber	Refinery Stack
Nickel Screening and Splitting Area (Crystallizer Area)	N/A	Vents Inside Building
Additional TBRC Matte Handling Process	N/A	Vents Inside Building
Process Transfer Bin and Vacuum Exhauster	N/A	Vents Inside Building
<b>ANALYTICAL LAB</b>		

Emission Source	Control Equipment	Exhaust Termination		
Digestion Hoods (3)	West Refinery Lab Scrubber	Independent Stack		
Digestion/Dilution Hoods (2)	East Refinery Lab Scrubber	Independent Stack		
Auto-Dilutor Fume Hood (1)				
Microwave Digestion Manifold Exhaust (4 microwaves)				
EW Process Lab Ventilation Hood (1)				
Sample Digestion/Acetone Sample Cooling Hood				
DFC 815 Fusion Furnace Exhaust/Hoods (3)	Fire Assay Area Baghouse	Vents Outside Building		
DFC 810 Cupel Furnace/Cress Cupel Furnace Exhaust/Hoods (4)				
Cooling Hoods (5)				
Mixing Hood (1)				
Slagging Hoods (3)				
TM Crusher Hood (1) [Sample Preparation Area]			Sample Prep Area Baghouse	Vents Inside Building
TM Crushers (2) [Sample Preparation Area]				
Herzog Pulverizer Exhausts (2) [Sample Preparation Area]				
TM Pulverizer Hoods (2) [Sample Prep and Concentrate Prep Areas]				
TM Pulverizers (4) [2 Sample Prep/2 Concentrate Prep Areas]				
High-Grade Pellet Press Hoods (2) [Concentrate Preparation Area]				
Sample Pellet Press (1) [Recycle Preparation Area]				
TM Vibratory Ring Pulverizer (1) [Recycle Preparation Area]				
Work Bench/Sample Prep Hood (1) [Recycle Preparation Area]				
High-Grade Standard Preparation Area (Hood for SWECOs)				
Low-Grade Sample Preparation Area Pellet Press				
Ro-Tap Sieve Shaker System (High-Grade Standard Preparation Area)				
Sample Preparation Dryer #1	N/A	Vents Outside Building		
Sample Preparation Dryer #2	N/A	Vents Outside Building		
Electric Drying Ovens [8]	N/A	Vents Inside Building		
Electric Muffle Furnace (Secondary Recycling Area) [4]	N/A	Vents Outside Building		
Lab Boiler (2.3 MMBtu/hr)	N/A	Independent Stack		
ICP Analyzers - Argon Fired [8]	N/A	Vents Outside Building		
LECO SC144DR Analyzer	N/A	Vents Outside Building		
LECO RO600 Analyzer	N/A	Vents Outside Building		
Electric Drying Oven and Hood for Acetone Preped Sample (Recycle Prep)	N/A	Vents Outside Building		
New Lab Boiler for Expansion (2.396 MMBtu/hr)	N/A	Independent Stack		
Digestion Hoods (2)	Aqua Regia Acid Mist Scrubber	Independent Stack		
Microwave Digestion Manifold Exhaust (3 microwaves)				
Area Cooling/Fume Hood for Auto-Dilutor Samples				
Wet Lab Area - 3 hoods	Hygiene Acid Hoods/Carbon Filters	Vents Inside Building		
V-Blender	N/A	N/A		
Specs 8000 Mixer/Mill [2]	N/A	N/A		
Sepor Blender (Football Blender)	N/A	Vents Inside Building		

## B. Source Description

Crushers and grinding mills are utilized at two off-site mine locations to reduce the mined material to a suitable diameter to facilitate separation and recovery of palladium and platinum ores. A flotation process follows, which generates slurry concentrate through agitation of the material in a mixture of water and flotation reagents. The floating layer is collected as concentrate and transported to Stillwater's Columbus Metallurgical Complex site near Columbus, Montana.

The filter cake concentrate is received, sampled, dried, and pneumatically conveyed to a concentrate bin where it is fed to an electric furnace. Furnace matte is tapped into ladles and granulated in preparation for converting in the Top Blown Rotary Converters (TBRC). From the TBRC's converter matte is poured into ladles, granulated, dried and transported to the Refinery. Local ventilation systems capture process off-gas and route exhaust through a two part control process. A baghouse removes particulate matter entrained within the air stream prior to passing through a wet gas scrubber for sulfur dioxide (SO<sub>2</sub>) and fine particulate removal.

The refining process follows a series of stages in which palladium and other Platinum Group Metals (PGM) are separated from other metals. A three stage leach and metal recovery process selectively extracts nickel, iron, copper and other metals from the PGM. The resulting high grade PGM filter cake produced at the Stillwater Metallurgical Complex is sent to off-site third party refiners for final PGM extraction and purification. Certain operations are provided localized ventilation which is exhausted to the wet scrubber system.

### C. Permit History

The original air quality **MAQP #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 SO<sub>2</sub> emissions. All process gases from the electric furnace, 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 SO<sub>2</sub>/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 (CO<sub>2</sub>) 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 SO<sub>2</sub> removal.

The performance of the gas cleaning system is monitored with inlet and outlet SO<sub>2</sub> 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 SO<sub>2</sub> level, oxygen to the TBRC is automatically shut down, suspending the primary SO<sub>2</sub> source.

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

The first permit alteration was given **MAQP #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. SO<sub>2</sub> emission limitation increases were also approved.

**MAQP #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.

**MAQP #2635-03** was a modification issued April 15, 1994, which incorporated language to clarify the quality assurance requirements relative to the outlet SO<sub>2</sub> CEMS. This language was placed in Section II.D of the permit.

**MAQP #2635-04** was a modification issued on August 1, 1994, to clarify language in a previous permit analysis. Specifically, in the discussion on MAQP #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.

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

**MAQP #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 PGM catalyst. Stillwater installed similar particulate and SO<sub>2</sub> 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 (currently ARM 17.8.745).

The second smelting circuit resulted in an increase in emissions in tons per year (tpy) of 73.4, 62.7, 62.6, 6.3, and 1.6 of SO<sub>2</sub>, particulate matter (PM), particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), oxides of nitrogen (NO<sub>x</sub>), and carbon monoxide (CO), respectively. Total allowable emissions from the facility, including both Smelting Circuit #1 and #2, were approximately 96.2, 86.9, 85.9, 8.14, and 1.94 tpy of SO<sub>2</sub>, PM, PM<sub>10</sub>, NO<sub>x</sub>, 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. MAQP #2635-06 included annual emission limits, an operational limit, and reporting requirements to verify that the facility's emissions are less than 100 tpy of SO<sub>2</sub>.

For the purpose of demonstrating compliance with the National Ambient Air Quality Standards (NAAQS) 3-hour SO<sub>2</sub> limit and the Montana Ambient Air Quality Standards (MAAQS) 1-hour SO<sub>2</sub> limit, Stillwater permitted SO<sub>2</sub> limits of 86 lbs/hr on smelting circuit #1 and 235 lbs/hr on smelting circuit #2. In addition, the proposed 24-hour rolling average hourly emission rates of 24 lbs/hr of SO<sub>2</sub> for smelting circuit #1 and 50 pounds per hour of SO<sub>2</sub> 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 SO<sub>2</sub> 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 tpy. The Department agreed to increase Smelting Circuit #1's limitation. The SO<sub>2</sub> permitted potential emission rate from the facility is 96.16 tpy. **MAQP #2635-06** replaced MAQP #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 (actual cubic feet per minute). 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 IV of the permit analysis for MAQP #2635-07.

In addition, Stillwater requested that the production limit of 11,500 tpy throughput for smelting circuit #1 and a 37,050 tpy throughput limit for smelting circuit #2, as stated in MAQP #2635-06, be re-stated as a combined throughput production limit of 48,550 tpy through Smelting Circuit #1 and Smelting Circuit #2. The new combined throughput limit was included in Section II.B.1. **MAQP #2635-07** replaced MAQP #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 SO<sub>2</sub> CEMS 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 MAQP #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 SO<sub>2</sub> CEMS requirement for Smelting Circuit #1 was in place for documenting SO<sub>2</sub> emissions during smelting operations that have significant potential process SO<sub>2</sub> emissions. Stillwater demonstrated, to the Department's satisfaction, that concentrate drying activities will not result in significant, if any, SO<sub>2</sub>

emissions. Therefore, the Department removed the CEMS 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 tpy, 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. **MAQP #2635-08** replaced MAQP #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 correspondences, and a subsequent site visit/inspection in August of 2002, the Department determined that, as permitted under MAQP #2635-08, the total facility Potential To Emit (PTE) for PM<sub>10</sub> exceeded the Title V Operating Permit PTE threshold of 100 tpy for PM<sub>10</sub>.

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 PM<sub>10</sub> 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 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 PM<sub>10</sub> 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 MAQP #2635-09. Further, the permit action incorporated all existing equipment into the permitted list of equipment at the facility. **MAQP #2635-09** replaced MAQP #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 (MAQP #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 (MAQP #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 IV 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 MAQP #2635-10. **MAQP #2635-10** replaced MAQP #2635-09.

On December 9, 2003, Stillwater submitted a letter clarifying an administrative amendment request that had been submitted on November 6, 2003. One purpose of this amendment 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 information. The full emission inventory for the facility and corresponding calculations would no longer be included in the analysis section of the permit. Stillwater will submit updated emission inventory information as necessary and this information will be maintained in the company file. **MAQP #2635-11** replaced MAQP #2635-10.

On February 18, 2004, the Department received a request from Stillwater for an administrative amendment to MAQP #2635-11. Specifically, the request involved modifying the catalyst and/or concentrate throughput processing limit in Section II.B.1 of MAQP #2635-11 and modifying the corresponding allowable SO<sub>2</sub> limits contained in Section II.A.3 and II.A.4 of MAQP #2635-11. Section II.A.3 was modified to combine the smelting circuit #1 and smelting circuit #2 SO<sub>2</sub> 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 SO<sub>2</sub> 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 British Thermal Unit (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 tpy, addition of these units was accomplished in accordance with the de minimis rule. **MAQP #2635-12** replaced MAQP #2635-11.

On June 2, 2004, Stillwater submitted notification to the Department for the installation and operation of a 650 kW 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 MAQP #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 administrative amendment. Stillwater asked the Department to halt issuance of the administrative amendment 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 administrative amendment. The following additional changes were incorporated;

- 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.

**MAQP #2635-13** replaced MAQP #2635-12.

On January 19, 2006, the Department received a request from Stillwater for an administrative amendment to MAQP #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 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. **MAQP #2635-14** replaced MAQP #2635-13

On July 18, 2007; the Department received a complete application from Stillwater for the modification of MAQP #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.

This permit modification did not increase allowable emissions of any regulated pollutant from the permitted facility as each new emitting unit is vented through existing and permitted emission control equipment and all existing and affected material throughput limits remained the same under the current permit action. The following changes to MAQP #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 MAQP #2635-15

On August 27, 2007, the Department received comments from Stillwater on the Department’s PD on MAQP #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 MAQP #2635-15:

- *MAQP #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 has been made to the permit prior to issuance of the Department's decision. **MAQP #2635-15** replaced MAQP #2635-14.

#### D. Current Permit Action

The current permit action is an administrative amendment of Stillwater's MAQP to incorporate multiple de minimis notifications proposed to the Department of Environmental Quality (Department). Identification and description of improvements and/or additions to the Columbus Metallurgical Complex addressed within this action are as follows;

On August 30, 2007, Stillwater proposed the addition of four (4) new 100,000 Btu/hr forced air natural gas-fired heaters to be installed at the complex's office building.

On October 17, 2007, Stillwater proposed adjustments and/or installations, listed below, to the analytical laboratory. The proposed changes did not result in an increase in emissions.

- Installation of two (2) cooling hoods installed near the fire assay furnaces to remove radiant heat from fired crucibles/cupels. The hoods will be ducted to the existing Fire Assay Area Baghouse;

- Installation of an additional slagging hood near the fusion furnace to remove radiant heat from fused samples. The hoods will be ducted to the existing Fire Assay Area Baghouse;
- Adjustments proposed to the four (4) digestion hoods originally identified were revised to include two (2) digestion hoods and one (1) microwave digestion manifold exhaust - venting three microwaves. The digestion hoods and microwave digestion manifold will be ventilated to the Aqua Regia Acid Mist Scrubber to remove acid gas emissions; and
- Installation of an additional hygiene filter, to include two (2) collection hood, fan, and carbon filter, in the wet lab area of the recent lab expansion, to capture and remove residual acid fumes.

On June 6, 2008, Stillwater proposed the following projects and/or adjustments to the Precious Metals Smelter;

- Installation of a new crushing system to size, sample, and prepare precious metal-bearing recyclable materials for feed to the smelter furnace; and
- Clarification of the feed point for introducing precious metal-bearing recyclable material to the smelter; and
- Installation of a new process feed transfer bin and vacuum exhauster to redirect feed materials from the existing furnace feed system to the second furnace feed system.

On October 14, 2008, Stillwater proposed the addition of four (4) emissions sources at the Base Metals Refinery and two (2) emission sources at the analytical laboratory as follows;

- Installation of two (2) forced air natural gas-fired heaters for the base metal refinery maintenance area with a maximum rating heat capacity of 40,000 and 60,000 Btu/hr;
- Installation of a single 40,000 Btu/hr natural gas-fired hot water heater servicing the base metal refinery maintenance area;
- Stillwater proposed changes to the method of handling TBRC Matte produced by the precious metals smelter, whereby, the TBRC Matte will be placed into supersacks for storage prior to use in the base metal refinery;
- Installation of a new inductively Coupled Plasma analyzer within the laboratory; and
- Installation of a new cooling/fume hood to control acid emissions from the auto-dilutor sampler. Hood will collect and duct acid fumes emitted from cooling samples to Aqua Regia Acid Mist Scrubber.

On April 9, 2009, Stillwater proposed the installation of two (2) natural gas-fired Heating, Ventilation, and Air-Conditioning (HVAC) units of 250,000 and 80,000 Btu/hr capacity in the furnace (#2) transformer room and two (2) 150,000 Btu/hr natural gas-fired space heater in the TBRC Reline Building.

On May 20, 2009, Stillwater proposed the following equipment additions and/or upgrades in the analytical laboratory;

- One “V-Blender” for closed cup blending of solid product samples;
- Two “Specs 8000 Mixer/Mill” for closed cup mixing of solid product samples;
- One “Sepor Blender” for blending of internal reference materials;
- One dust hood in the recycle preparation area for sample preparation activities;
- Two small electric drying ovens for drying solid product samples;

- Relocation of the previously permitted vibratory ring pulverizer from the sample preparation area to the recycle preparation area;
- Relocation of the previously permitted sample pellet press from the low grade pellet room to the recycle preparation area; and
- Relocation of a previously permitted electric drying oven for use with acetone prepared samples from the high digestion area to the recycle preparation area.

On September 9, 2009, Stillwater proposed the following new emission sources;

- Introduction and use of metallurgical coke as a supplemental feed material to be added to the Precious metals Smelter furnace to increase metal recovery efficiencies; and
- Install two (2) new pellet presses within the analytical laboratory.

On February 5, 2010, Stillwater proposed the following improvements and/or additions;

- Installation and start-up of the New Precious Metal-Bearing Recyclable Material Crushing system;
- Relocation of the existing, permitted Revert Crushing area to the Secondary Preparation Building;
- Installation of a new drum dumping system to feed recyclable materials, collected from the new crushing system, to the permitted 2-point Rotating Tube Sampler for representative sample preparation;
- Installation of a new Recyclable Material Transfer Room to control and capture particulate emissions from operating and cleaning the permitted 3-Point Rotating Tube Sampler and both 12-Point Rotating Table Samplers;
- Installation of two (2) natural gas radiant heaters within the old Smelting Circuit #1 building and four (4) natural gas radiant heaters within the new Recyclable material Receiving Area/Warehouse;
- Installation of an automated sample preparation and X-Ray analysis system within the old Smelting Circuit #1 area to reduce turnaround times for recyclable material analysis;
- Ventilation of the Low-Grade Sample Preparation Area pellet press (currently permitted for use in the Analytical Laboratory) through the lab's existing Sample Preparation Area Baghouse;
- Installation of a Ro-Tap sieve shaker system within the High-Grade Standard Preparation Area of the Analytical laboratory;
- Installation of sample preparation equipment for daily Smelter samples submitted to SMC's Analytical laboratory;
- Installation of a small, electric test furnace at the Smelter for bench scale testing and research;
- Replacement of the existing, propane-fired Co-Ray-Vac Heating System currently permitted within the Smelter's Maintenance Shop with two (2) natural gas space heaters; and
- Installation of four (4) new GenSys fuel cells at the Base Metals Refinery for supplemental power needs.

On July 27, 2010, Stillwater proposed the following process improvements and new emission sources;

- Three (3) new Trane combination heaters/air-conditioning units for the Precious Metals Smelter's new automated sample preparation and X-Ray analysis area/building;

- Usage of silica sand cleaning media within the Smelter's new sample pulverizers (part of the automated sample preparation and X-Ray analysis system);
- Ventilation of the permitted spoon dosing station through the larger sample preparation equipment baghouse installed as part of the automated sample preparation and X-Ray analysis system;
- Installation and ventilation of a cup cleaning station within the automated sample preparation and X-Ray analysis system;
- One (1) new recyclable material mixer/blender for precious metal filter cake blending at the Smelter;
- Installation of a new pneumatic conveyor, process transfer bin (inline dust collector), and vacuum exhauster within the Base Metals Refinery Security Area to reduce ergonomic issues associated with the current PGM Filter Cake handling process;
- One (1) new vibratory ring pulverizer in the recycle preparation area of the Analytical Laboratory; and
- Relocation of the previously permitted sample pellet press within the Lab's recycle area to the concentrate preparation area (also within the Lab).

On November 16, 2010, Stillwater notified the Department of a like-kind replacement of the baghouse servicing the Precious Metal Smelter's 200 Ton Dried Concentrates Silo.

On February 21, 2011, Stillwater notified the Department of its plans to relocate three (3) existing sources;

- One (1) bagging and unloading station for emptying full supersacks of concentrate or catalyst material was proposed to be relocated to the old Revert Crushing Area for tie-in with the new Precious Metal-Bearing Recyclable Material Crushing System;
- Relocate one (1) TM vibratory ring pulverizer from the Recycle Preparation Area to the Sample Preparation Area, where the unit is to be ventilated to the Sample Preparation Baghouse; and
- Relocate a sample pellet press from the Concentrate Preparation Area to the Recyclable Preparation Area, where the unit is to be ventilated to the Sample Preparation Area Baghouse.

On July 7, 2011, Stillwater notified the Department of two proposed changes to the facility's operations;

- Planned like-kind replacement of the baghouse servicing the Precious Metal Smelter's Concentrate Dryer. This replacement will not affect the Metallurgical Complex Emission Inventory; and
- Addition of a second slag hole and slag launder to the Smelter's Original Furnace Number 2—the back-up (critical spare) and slag cleaning furnace previously permitted under MAQP #2635-15 Alteration.

On September 27, 2011, Stillwater proposed the new emission units and associated equipment changes;

- Replacement of an existing combination heater/air conditioning unit with two (2) new natural gas-fired units servicing the Smelting Circuit Motor control center;
- Replacement of two (2) existing propane-fired space heaters in the Revert Crushing Building with two (2) new natural gas-fired space heaters of the same combustion rates;
- Installation of one (1) new LECO C-230 Analyzer in the Automated Sample Preparation Area of the Precious Metals Smelter;

- Installation of one (1) new Inductively Coupled Plasma analyzer within the Analytical Laboratory; and
- Update on the forced air heaters servicing the Base Metals refinery Maintenance Shop expansion area, initially proposed through a de minimis notification dated October 14, 2008.

The Department has reviewed the aforementioned de minimis requests and notifications submitted by Stillwater. Where the projects were proposed as de minimis, under ARM 17.8.745, the Department has reviewed documentation and supports the assertion that the proposed changes or additions met the definition of de minimis. This permit also updates current permit language and rule references used by the Department. MAQP #2635-16 replaces MAQP #2635-15.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) 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 facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for location 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).

Stillwater 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. (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 (SO<sub>2</sub>)
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide (CO)
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter (PM)
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 Particulate Matter with an Aerodynamic Diameter of Ten Microns or Less (PM<sub>10</sub>)

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 precaution are 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. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (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.

- 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 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 as it does not meet the definition of a primary copper smelter. Stillwater's smelter is sized and designed to process PGM and produces copper only as a by-product.
  - c. 40 CFR 60, Subpart LL - Standards of Performance for Metallic Mineral Processing Plants. The facility is applicable to Subpart LL as 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.
  - d. 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. The 15 million British Thermal Units per hour (MMBtu/hr) BMR natural gas-fired boiler is an affected facility under Subpart Dc, as the boiler was constructed after June 9, 1989 and has a maximum design heat input capacity equal to or greater than 2.9 megawatts (MW) [10 MMBtu/hr] but less than 29 MW [100 MMBtu/hr].
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 for Source Categories. The source, as defined 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 JJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. The boilers operating at Stillwater are natural gas-fired units and are therefore not subject to the provisions of Subpart JJJJJ.
- 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. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.

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.

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 potential to emit (PTE) greater than 25 tpy of any pollutant. Stillwater has a PTE greater than 25 tons per year of PM, PM<sub>10</sub>, SO<sub>2</sub>, CO and oxides of nitrogen (NO<sub>x</sub>); 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. A permit application was not required for the current permit action as the permit change is considered an administrative permit change. (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. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.
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 tpy 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 tpy of any pollutant;
  - b. PTE > 10 tpy of any one Hazardous Air Pollutant (HAP), or PTE > 25 tpy of any combination of HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tpy of PM<sub>10</sub> in a serious PM<sub>10</sub> 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 #2635-16 for Stillwater, the following conclusions were made:
  - a. The facility's allowable PTE as permitted is less than 100 tpy for all pollutant;
  - b. The facility's PTE is less than 10 tpy for any one HAP and less than 25 tpy for combined HAPs;
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area;
  - d. This facility is subject to a current NSPS (40 CFR 60, Subpart A, Subpart LL, and Subpart Dc);
  - e. This facility is not subject to a 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 MAQP #2635-16 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.

Based on these facts, the Department determined that Stillwater will be a minor source of emissions as defined under Title V. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, Stillwater will be required obtain a Title V Operating permit.

### 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 determination was not required for the current permit action because the permit change is considered an administrative permit change.

### IV. Emission Inventory

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
<b>SMELTER</b>						
Concentrate Drying Circuit PM <sub>10</sub> Emissions	0.00	6.93	0.00	0.00	0.00	0.00
Concentrate Drying Circuit SO <sub>2</sub> Emissions	NA	NA	NA	NA	NA	NA
Hydrated Lime Silo (Old Smelting Circuit #1)	1.65	0.82	0.00	0.00	0.00	0.00
30-Ton Wet Concentrate Dryer Feed Hopper	0.019	0.008	0.00	0.00	0.00	0.00
Concentrate Dryer Process PM <sub>10</sub> Emissions	NA	NA	NA	NA	NA	NA
Natural Gas Use: Concentrate Dryer	0.22	0.22	0.02	2.95	2.48	0.16
Dried Concentrates Silo (200-Ton)	2.21	2.21	0.00	0.00	0.00	0.00
<sup>3</sup> Dust Collection Supersack, North Baghouse (#1)	0.00022	0.00011	0.00	0.00	0.00	0.00
Smelting Circuit Process PM <sub>10</sub> Emissions	0.00	33.04	0.00	0.00	0.00	0.00
<sup>9</sup> Smelting Circuit Process SO <sub>2</sub> Emissions (combined)	0.00	0.00	78.31	0.00	0.00	0.00
Smelting Circuit Natural Gas Use Emissions	0.34	0.34	0.03	4.50	3.78	0.25
Hydrated Lime Silo (Smelting Circuit)	0.83	0.83	0.00	0.00	0.00	0.00
<sup>7</sup> Limestone Flux Bin (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>3</sup> Dust Bin (Smelting Circuit)	0.11	0.11	0.00	0.00	0.00	0.00
<sup>3</sup> 40-Ton Dried Concentrates Bin (Smelting Circuit)	0.38	0.38	0.00	0.00	0.00	0.00
<sup>3</sup> Original Recyclable Materials/Reverts/Iron Residue Bin (Smelting Circuit)	0.05	0.02	0.00	0.00	0.00	0.00
<sup>3</sup> Original TBRC Slag Bin (Smelting Circuit)	0.066	0.033	0.00	0.00	0.00	0.00
<sup>2</sup> Original Electric Furnace #2 Emissions (Smelting Circuit) -- EF Process Off-Gases	NA	NA	NA	NA	NA	NA

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
-- EF Slag Hoods (2) for one slagging hole -- EF North Tapping Hood -- EF South Tapping Hood -- EF Matte Ladle Hood						
<sup>2</sup> Granulator Tipping Station Hood (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>2</sup> TBRC 2-1	NA	NA	NA	NA	NA	NA
<sup>2</sup> TBRC 2-2	NA	NA	NA	NA	NA	NA
<sup>2</sup> TBRC 2-3	NA	NA	NA	NA	NA	NA
<sup>2</sup> EF Matte/TBRC Slag Dryer (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>2</sup> TBRC Matte Dryer (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>3</sup> Pebble Lime Feed Systems (Smelting Circuit) [2]	0.24	0.12	0.00	0.00	0.00	0.00
<sup>3</sup> EF Matte Bins (Smelting Circuit) [2]	0.07	0.04	0.00	0.00	0.00	0.00
<sup>3</sup> Dried EF Matte Collection Garbros (Smelting Circuit)	0.07	0.04	0.00	0.00	0.00	0.00
<sup>3</sup> Dried TBRC Slag Collection Garbros (Smelting Circuit)	0.07	0.04	0.00	0.00	0.00	0.00
<sup>3</sup> Dried TBRC Matte Collection Bin (Smelting Circuit)	0.02	0.01	0.00	0.00	0.00	0.00
<sup>5</sup> Granulator	NA	NA	NA	NA	NA	NA
<sup>3</sup> Revert Crushing Area/Building Baghouse (Old Secondary Prep. Building) -- Jaw Crusher -- Cone Crusher -- Four Transfer Points	1.49	1.49	0.00	0.00	0.00	0.00
<sup>3</sup> Cone Crusher (Old Revert Crushing Area)	0.024	0.0014	0.00	0.00	0.00	0.00
Arrestal Dust Collector (Revert Crushing Building) -- Small Jaw Crusher for Smelter Daily Samples -- Enclosed Bowl Pulverizer for Smelter Daily Samples -- Sample Prep. Bench	0.009	0.009	0.00	0.00	0.00	0.00
Waste Ore Dump and Handling (Slag Pit Liner)	4.80	2.40	0.00	0.00	0.00	0.00
Smelter Slag Material Transfer	7.20	3.60	0.00	0.00	0.00	0.00
Gypsum Dumping and Loading	3.00	1.50	0.00	0.00	0.00	0.00
Smelter Diesel Fired Emergency Generator #1 (800 kW)	0.19	0.19	2.17	6.44	1.48	0.19
Smelter Diesel Fired Emergency Generator #2 (600 kW)	0.14	0.14	1.63	4.83	1.11	0.14
Moffit Indoor Smelter Building Heaters [2]	0.32	0.32	0.03	4.20	3.53	0.23
Reznor Make-Up Air Heater (Concentrate Drying Area)	0.10	0.10	0.0079	1.31	1.10	0.072
<sup>5</sup> Small Electric Drying Oven (Revert Crushing Area)	NA	NA	NA	NA	NA	NA
<sup>5</sup> Large Electric Drying Oven (Recyclable Material Sample Prep. Room)	NA	NA	NA	NA	NA	NA
<sup>5</sup> X-Large Electric Drying Oven (Concentrate Drying Area)	NA	NA	NA	NA	NA	NA
Dayton Overhead Space Heater (Compressor Room)	0.0050	0.0050	0.0004	0.066	0.055	0.0036
Reznor Overhead Space Heater (Lime Room)	0.0053	0.0053	0.00042	0.07	0.059	0.0039
<sup>3</sup> Dayton Overhead Space Heaters [11] -- Larox Filter Area (2) -- Scrubber Area (6) -- Granulation Room (3)	0.0033	0.0033	0.0003	0.043	0.036	0.0024
Dayton Overhead Space Heaters (Revert Crushing Building) [2]	0.0166	0.0166	0.0013	0.219	0.184	0.012
N. G. Water Heaters (AO Smith, Master-Fit) [2] -- Hot Well Area -- Larox Filter Area	0.033	0.033	0.0026	0.44	0.37	0.024
N. G. Water Heaters (Rheem by Ruud, Commercial) [2] -- West Heater for the Dry Area -- East Heater for the Dry Area	0.013	0.013	0.0011	0.18	0.15	0.0096

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
<sup>3</sup> N. G. Water Heater (Eyewash Area)	0.00067	0.00067	0.000053	0.0088	0.0074	0.00048
<sup>5</sup> Electric Water Heater (Eyewash Area)	NA	NA	NA	NA	NA	NA
Haul Roads	11.22	5.05	0.00	0.00	0.00	0.00
<sup>4</sup> Mobile Gasoline Use	NA	NA	NA	NA	NA	NA
<sup>4</sup> Mobile Diesel Use	NA	NA	NA	NA	NA	NA
Lennox Combination Heater/HVAC [2] -- West Heater/HVAC for Smelter Offices -- Central Heater/HVAC for Smelter Offices	0.012	0.012	0.00095	0.16	0.13	0.0087
Lennox Combination Heater/HVAC - East Heater (Smelter Offices)	0.0025	0.0025	0.0002	0.033	0.028	0.0018
<sup>3</sup> Concentrate/Catalyst Bagging and Unloading System	5.34	2.68	0.00	0.00	0.00	0.00
<sup>3</sup> Dayton Overhead Space Heater (New Granulation Area)	0.0003	0.0003	0.00002	0.0039	0.0033	0.0002
<sup>3</sup> Relocated Baghouse/Vacuum System (Unloading System)	0.0291	0.0291	NA	NA	NA	NA
Carrier Combination Heater/HVAC (Furnace #1 Transformer Room)	0.0060	0.0060	0.00047	0.0788	0.0662	0.0043
RUUD Combination Heater/HVAC (Smelting Circuit MCC)	0.0119	0.0119	0.00094	0.1559	0.1310	0.0086
Dayton Overhead Space Heater (Old Revert Crushing Area)	0.0083	0.0083	0.00066	0.1095	0.0920	0.0060
<sup>3</sup> Drum Dumping System (Smelting Circuit)	0.0061	0.0030	NA	NA	NA	NA
<sup>3</sup> Miscellaneous Material Screening Station (Revert Crushing Area)	0.0684	0.0342	NA	NA	NA	NA
<sup>3</sup> 2-Point Rotating Tube Sampler (Old Revert Crushing Area)	0.0079	0.0040	NA	NA	NA	NA
<sup>3</sup> 12-Point Rotating Table Sampler (Smelter Material Handling Area)	0.0545	0.0272	NA	NA	NA	NA
Portable Dust Control Vacuum (Old Revert Crushing Area)	NA	NA	NA	NA	NA	NA
<sup>1</sup> Recyclable Material Sample Preparation Room (Old Smelting Circuit #1) -- Enclosed Bowl Pulverizers (2) -- Sieve Shakers/Screens (2) -- 8-Point Samplers (2) -- Work Benches	NA	NA	NA	NA	NA	NA
Reznor Combination Heater/HVAC (Recyclable Material Sample Prep.)	0.0233	0.0233	0.0018	0.3066	0.2575	0.0169
Ruud Combination Heater/HVAC (Recyclable Material Sample Prep.)	0.0033	0.0033	0.0003	0.0438	0.0368	0.0024
<sup>2</sup> New Electric Furnace #2 Emissions (Smelting Circuit) -- EF Process Off-Gases -- EF Slag Hoods (6) for three slagging holes -- EF North Tapping Hood -- EF South Tapping Hood -- EF Matte Ladle Hood	NA	NA	NA	NA	NA	NA
<sup>2</sup> New TBRC Slag Bin (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>2</sup> New Recyclable Materials/Reverts/Iron Residue Bin (Smelting Circuit)	NA	NA	NA	NA	NA	NA
<sup>3</sup> New Process Feed Transfer Bin and Vacuum Exhauster	0.132	0.132	NA	NA	NA	NA
<sup>3</sup> Precious Metal-Bearing Recyclable Material Feed Chute	0.605	0.303	NA	NA	NA	NA
Trane Combination Heater/HVAC (New Furnace #2 Transform. Rm - roof)	0.0083	0.0083	0.0007	0.1095	0.0920	0.0060
Trane Combination Heater/HVAC (New Furnace #2 Transform. Rm - floor)	0.0027	0.0027	0.0002	0.0350	0.0294	0.0019
Reznor Overhead Space Heaters (TBRC Reline Building) [2]	0.0100	0.0100	0.0008	0.1314	0.1104	0.0072
Metallurgical Coke Addition (Drum Dump System to Electric Furnace)	0.00002	0.00001	0.0432	NA	NA	NA
<sup>3</sup> & <sup>13</sup> Precious Metal-Bearing Recyclable Material Crushing System	1.8219	1.7850	0.0000	0.0000	0.0000	0.0000
<sup>3</sup> New Drum Dumping System (Recyclable Material)	0.00002	0.00001	0.0000	0.0000	0.0000	0.0000

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
<sup>1</sup> Recyclable Material Transfer Area/Enclosure -- 3-Point Rotating Tube Sampler -- 12-Point Rotating Table Sampler -- 2-Point Sample Splitter -- Compressed Air Cleaning Station	NA	NA	NA	NA	NA	NA
Detroit Radiant Products Company Radiant Heaters [6] -- New Recyclable Material Crushing Area (2) -- Recyclable Material Receiving Area/Warehouse (4)	0.0249	0.0249	0.0020	0.3285	0.2760	0.0181
<sup>5</sup> Electric Muffle Furnaces (Automated Sample Preparation Area) [4]	NA	NA	0.1159	NA	NA	NA
Electric Drying Oven (Automated Sample Preparation Area) [2]	NA	NA	NA	NA	NA	NA
<sup>3</sup> Large Sample Prep Equipment Baghouse (Automated Sample Prep Sys.) -- HP-M1500 Mills/Pulverizers (2) -- HP-P Pellet Presses (2) -- Spoon Dosing Station -- Cup Cleaning Station	0.198	0.198	0.000	0.000	0.000	0.000
Small Sample Prep Equipment Baghouse (Automated Sample Prep Sys.) -- HP-M Mills/Pulverizers (2) -- Acetone Usage -- Isopropyl Alcohol Cleaning	0.991	0.991	0.000	0.000	0.000	7.753
<sup>3</sup> Conveyor Belt Systems (Automated Sample Prep System) [2]	NA	NA	NA	NA	NA	NA
<sup>3</sup> X-Ray Detectors (Automated Sample Prep System) [4]	NA	NA	NA	NA	NA	NA
<sup>3</sup> Pellet Press for Smelter Daily Samples (Revert Crushing Building)	0.00000 5	0.00000 3	NA	NA	NA	NA
Electric Test Furnace	0.0913	0.0456	0.2876	0.0000	0.0000	0.0000
Dayton Overhead Space Heaters (Old Regen. Area/Smelter Maint. Shop) [2]	0.0166	0.0166	0.0013	0.2190	0.1840	0.0121
Trane Combination Heater/HVAC (Automated Sample Prep Building) [3] -- North Heater/HVAC -- Center Heater/HVAC -- South Heater/HVAC	0.0112	0.0112	0.0009	0.1472	0.1236	0.0081
Silica Sand Cleaning Media Addition (Automated Sample Prep System) -- HP-M1500 Mills/Pulverizers (2) -- HP-M Mills/Pulverizers (2)	0.00015	0.00008	NA	NA	NA	NA
<sup>1</sup> Recyclable Material Mixer/Blender (Concentrate Drying Area)	NA	NA	NA	NA	NA	NA
LECO C-230 Carbon Determinator (Automated Sample Prep Area)	NA	NA	0.0019	NA	NA	NA
<b>Smelter Emission Subtotal:</b>	<b>44.39</b>	<b>66.43</b>	<b>82.66</b>	<b>27.11</b>	<b>15.89</b>	<b>8.95</b>
<b>BASE METALS REFINERY</b>						
<sup>3</sup> BMR Tower Mill Feed Hopper	0.015	0.0075	0.00	0.00	0.00	0.00
NSC Dryer Process PM <sub>10</sub> Emissions (Baghouse)	1.09	1.09	0.00	0.00	0.00	0.00
Natural Gas Use: NSC Dryer	0.026	0.026	0.002	0.34	0.29	0.019
Nickel Sulfate Bagging Unit Baghouse	0.23	0.23	0.00	0.00	0.00	0.00
New Natural Gas Fired Boiler (15 MMBtu/hr)	0.50	0.50	0.04	6.57	5.52	0.36
Refinery Diesel Fired Emergency Generator (650 kW)	0.15	0.15	1.76	5.23	1.20	0.15
<sup>6</sup> Refinery Main Scrubber -- Tower Mill -- Nickel Atmospheric Leach (NAL) Circuit [9 tanks] -- Iron Removal Tanks (2)	NA	NA	NA	NA	NA	NA

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
-- Nickel Solution and Solution Surge Tanks (2) -- Nickel Crystal Evaporator Condensate Tank -- Polish Autoclave Feed Tanks (2) -- Polish Filter and Filtrate Tanks (3) -- Vertical Autoclave Discharge Tank -- Copper Dissolve Circuit [4 tanks, 2 sample stations] -- Copper Electrowinning (E.W.) Circuit [5 tanks] -- Process Water Tank -- Scrubber Water and Thickener Tanks (2)						
<sup>7</sup> Security Area Electric Dryers (3)	NA	NA	NA	NA	NA	NA
<sup>3</sup> Security Area Baghouse -- Security Area Portable Hopper -- Security Area Delumper -- Security Area Surge Hopper -- Security Area Pin Mill w/ Feed Screw -- Security Area Mixer/Blender -- Security Area Sample Preparation Dust Hood	0.12	0.12	0.00	0.00	0.00	0.00
<sup>6</sup> Refinery Electrowin Scrubber -- Copper Electrowinning Cells (10)	NA	NA	NA	NA	NA	NA
<sup>5</sup> SO <sub>2</sub> Hygiene Fan	NA	NA	NA	NA	NA	NA
Reznor Roof Heaters (Grinding Area) [2] -- North Heater/HVAC -- South Heater/HVAC	0.025	0.025	0.0020	0.33	0.28	0.018
Carrier Combination Heater/HVAC (2nd Floor, Utilities Room) [2] -- North Heater/HVAC -- South Heater/HVAC	0.0053	0.0053	0.00042	0.0701	0.0589	0.0039
Modine Overhead Space Heaters (Electrowin Area) [2] -- West, Unit 1 -- East, Unit 2	0.012	0.012	0.00092	0.15	0.13	0.0084
Modine Overhead Space Heater (SO <sub>2</sub> Ton Room)	0.005	0.005	0.00039	0.066	0.055	0.0036
Modine Overhead Space Heater (Electrical Shop)	0.0048	0.0048	0.00038	0.064	0.053	0.0035
Trane Combination Heater/HVAC (Maintenance Shop)	0.0083	0.0083	0.0007	0.11	0.092	0.006
Reznor Overhead Space Heaters (Grinding Area) [2] -- Southwest Door -- Southeast Door	0.011	0.011	0.00084	0.14	0.12	0.0077
Reznor and Dayton Overhead Space Heaters [2] -- Maintenance Shop (Reznor) -- Boiler Area (Dayton)	0.0053	0.0053	0.00042	0.07	0.059	0.0039
Refinery N. G. Water Heater (Grinding Area)	0.0066	0.0066	0.00052	0.087	0.073	0.0048
Refinery N. G. Water Heater (New Offices)	0.008	0.008	0.00063	0.105	0.088	0.0058
Plasma Cutting Table (Maintenance Shop)	0.00	0.00	0.00	0.55	0.00	0.00
<sup>8</sup> Clarifier Filter Press Drop Chute	NA	NA	NA	NA	NA	NA
<sup>8</sup> Iron Removal Filter Press Drop Chute	NA	NA	NA	NA	NA	NA
<sup>8</sup> STR Filter Press Drop Chute	NA	NA	NA	NA	NA	NA
<sup>8</sup> EW/Recirculation Filter Press Drop Chute	NA	NA	NA	NA	NA	NA
<sup>8</sup> Security Area Filter Press Drop Chute	NA	NA	NA	NA	NA	NA
<sup>5</sup> Small Electric Oven (Copper Dissolve Area)	NA	NA	NA	NA	NA	NA
<sup>5</sup> Small Electric Oven (Security Area Entry)	NA	NA	NA	NA	NA	NA
Modine Overhead Space Heaters (Ni Solution Area) [4]	0.0233	0.0233	0.0018	0.31	0.26	0.0169
<sup>3</sup> Nickel Screening and Splitting Area (Crystallizer Area)	0.00000	0.00000	NA	NA	NA	NA

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Carrier Forced Air Heaters (New Office Building/west of BMR) [4]	0.0133	0.0133	0.00105	0.1752	0.1472	0.0096
RUUD Forced Air Heaters (BMR Maintenance Shop Expansion) [2]	0.0035	0.0035	0.00028	0.046	0.039	0.0025
Electric Water Heater (BMR Maintenance Shop Expansion)	NA	NA	NA	NA	NA	NA
<sup>3</sup> Additional TBRC Matte Handling Process	0.0050	0.0025	NA	NA	NA	NA
Plug Power GenSys Fuel Cells [4]	0.0000	0.0000	0.0299	0.0022	0.0004	0.0000
<sup>3</sup> Process Transfer Bin and Vacuum Exhauster	0.0289	0.0289	NA	NA	NA	NA
<b>BMR Emission Subtotal:</b>	2.30	2.29	1.85	14.41	8.46	0.63
<b>ANALYTICAL LAB</b>						
<sup>6</sup> West Refinery Lab Scrubber (High Digestion, #1) -- Digestion Hoods (3)	NA	NA	NA	NA	NA	NA
<sup>6</sup> East Refinery Lab Scrubber (Low Digestion, #2) -- Digestion/Dilution Hoods (2) -- Auto-Dilutor Fume Hood (1) -- Microwave Digestion Manifold Exhaust (4 microwaves) -- EW Process Lab Ventilation Hood (1) -- Sample Digestion/Acetone Preped Sample Cooling Hood	NA	NA	NA	NA	NA	NA
Fire Assay Area Baghouse -- DFC 815 Fusion Furnace Exhaust/Hoods (3) -- DFC 810 Cupel Furnace/Cress Cupel Furnace Exhaust/Hoods (4) -- Cooling Hoods (5) -- Mixing Hood (1) -- Slagging Hoods (3)	7.19	7.19	0.3157	0.00	0.00	0.00
<sup>3</sup> Sample Prep Area Baghouse -- TM Crusher Hood (1) [Sample Preparation Area] -- TM Crushers (2) [Sample Preparation Area] -- Herzog Pulverizer Exhausts (2) [Sample Preparation Area] -- TM Pulverizer Hoods (2) [Sample Prep/Concentrate Prep] -- TM Pulverizers (4) [2 Sample Prep/2 Concentrate Prep Areas] -- High-Grade Pellet Press Hoods (2) [Concentrate Prep Area] -- Sample Pellet Press (1) [Recycle Preparation Area] -- TM Vibratory Ring Pulverizer (1) [Recycle Preparation Area] -- Work Bench/Sample Prep Hood (1) [Recycle Prep Area] -- High-Grade Standard Preparation Area (Hood for SWECOs) -- Low-Grade Sample Preparation Area Pellet Press -- Ro-Tap Sieve Shaker System (High-Grade Standard Prep)	0.99	0.99	0.00	0.00	0.00	0.522
Sample Preparation Dryer #1	0.002	0.002	0.0002	0.031	0.026	0.002
Sample Preparation Dryer #2	0.003	0.003	0.0003	0.044	0.037	0.002
<sup>5</sup> Electric Drying Ovens [8] -- Sample Prep./Receiving Area (3) -- Concentrate Preparation Area -- Secondary Recycling Area (2) -- Recycle Preparation Area -- AP/BP Balance Room	NA	NA	NA	NA	NA	NA
<sup>5</sup> Electric Muffle Furnace (Secondary Recycling Area) [4]	NA	NA	0.103	NA	NA	NA
Lab Boiler (2.3 MMBtu/hr)	0.077	0.077	0.006	1.01	0.85	0.06
<sup>10</sup> ICP Analyzers - Argon Fired [8]	NA	NA	NA	NA	NA	NA
LECO SC144DR Analyzer	NA	NA	0.0069	NA	NA	NA
LECO RO600 Analyzer	NA	NA	0.0002	NA	NA	NA
Electric Drying Oven and Hood for Acetone Preped Samples	NA	NA	NA	NA	NA	3.64

Emission Source	PTE tons/yr					
	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
(Recycle Prep)						
New Lab Boiler for Expansion (2.396 MMBtu/hr)	0.0798	0.0798	0.0063	1.0495	0.8815	0.0577
<sup>6</sup> Aqua Regia Acid Mist Scrubber (LMITS) -- Digestion Hoods (2) -- Microwave Digestion Manifold Exhaust (3 microwaves) -- Area Cooling/Fume Hood for Auto-Dilutor Samples	NA	NA	NA	NA	NA	NA
<sup>11</sup> Hygiene Acid Hoods and Carbon Filters (Wet Lab Area) [3 hoods/2 filters]	NA	NA	NA	NA	NA	NA
<sup>12</sup> V-Blender	NA	NA	NA	NA	NA	NA
<sup>12</sup> Specs 8000 Mixer/Mill [2] -- Concentrate Preparation Area -- Low-Grade Sample Preparation Area	NA	NA	NA	NA	NA	NA
<sup>3</sup> Sepor Blender (Football Blender)	0.0009	0.0004	NA	NA	NA	NA
<b>Laboratory Emission Subtotal:</b>	8.34	8.34	0.44	2.13	1.79	4.28
<b>Metallurgical Complex Emission Totals:</b>	55.03	77.07	84.94	43.66	26.14	13.87

NOTES:

-- Hood and/or emission location

- 1 Process PM10 emissions from these sources are not counted in the total facility PTE because these emissions are routed through the concentrate drying circuit stack and have already been accounted for in the emission inventory (concentrate drying/revert crushing process).
- 2 Process PM10 emissions from these sources are not counted in the total facility PTE because these emissions are routed through the smelting circuit stack and have already been accounted for in the emission inventory (smelting circuit process).
- 3 Emissions vent or are contained inside the building; therefore, a 90% control factor is applied to the source.
- 4 Mobile emission sources are insignificant at this facility.
- 5 No particulate in process: insignificant vapor mist emissions only.
- 6 No particulate emissions: insignificant acid gas emissions only.
- 7 Emissions ducted to source that has already been accounted for in the emission inventory.
- 8 No particulate emissions: moisture content of product equals or exceeds 10%.
- 9 Per Air Quality Permit #2635-12, potential SO<sub>2</sub> emissions from Smelter #1 (old/renamed) and Smelter #2 (renamed) have been recalculated based on the individual concentrate and catalyst throughput limitations and sulfur contents. In addition, new SO<sub>2</sub> emission limitations have been established for the combined operations of smelting circuit #1 (the concentrate drying/revert crushing circuit) and #2 (the smelting circuit).
- 10 Inert gases used for sample analysis; no regulated pollutant emissions.
- 11 Hygiene system to enhance air quality inside the building; filters vent inside building.
- 12 Activity performed inside a closed, sealed vessel; no regulated pollutant emissions.
- 13 System includes two baghouse dust collectors and two bin vent baghouse(s).
- 14 Process PM10 emissions from these sources are not counted in the total facility PTE because these emissions are routed through the Sample Prep Area Baghouse and have already been accounted for in the emission inventory.

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 2-10-105, 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

This permitting action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, an Environmental Assessment is not required.

Permit Analysis Prepared By: D. Kuenzli

Date: October 26, 2011