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Stibnite Gold Project Permit to Construct Application

PREPARED FOR:
MIDAS GOLD IDAHO, INC.

PROJECT NO. 335-1
JUNE 23, 2020

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Attachment A – Ambient Impact Assessment: Stibnite Gold Project Air Quality Modeling Report

1.0 APPLICATION FORMS/CHECKLIST

1.1 Form CSPTC – Cover Sheet for Air Permit Application – Permit to Construct

The Idaho Department of Environmental Quality (IDEQ) air quality program application forms are provided here for the Permit to Construct (PTC) application for the Midas Gold Idaho, Inc. (Midas Gold) Stibnite Gold Project (SGP). This cover sheet provides a summary of the forms included with this application.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER			
1. Company Name	Midas Gold Idaho, Inc.		
2. Facility Name	Stibnite Gold Project	3. Facility ID No.	
4. Brief Project Description - One sentence or less	Conventional open-pit mining and ore preparation and gold extraction processes.		

PERMIT APPLICATION TYPE

5. ☒ New Source ☐ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☐ Unpermitted Existing Source ☐ Facility Emissions Cap ☐ Modify Existing Source: Permit No.:_____ Date Issued:_____
☐ Required by Enforcement Action: Case No.:_____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms		DEQ Verify
☒	☐	Form CSPTC – Cover Sheet		☐
☒	☐	Form GI – Facility Information		☐
☒	☐	Form EU0 – Emissions Units General	Please specify number of EU0s attached: 57	☐
☒	☐	Form EU1– Industrial Engine Information	Please specify number of EU1s attached: 4	☐
☒	☐	Form EU2– Nonmetallic Mineral Processing Plants	Please specify number of EU2s attached: 1	☐
☐	☒	Form EU3– Spray Paint Booth Information	Please specify number of EU3s attached: 0	☐
☐	☒	Form EU4– Cooling Tower Information	Please specify number of EU4s attached: 0	☐
☒	☐	Form EU5 – Boiler Information	Please specify number of EU5s attached: 15	☐
☐	☒	Form CBP– Concrete Batch Plant	Please specify number of CBPs attached: 0	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant	Please specify number of HMAPs attached: 0	☐
☐	☒	PERF – Portable Equipment Relocation Form		☐
☐	☒	Form AO – Afterburner/Oxidizer		☐
☒	☐	Form CA – Carbon Adsorber	Please specify number of CAs attached: 4	☐
☐	☒	Form CYS – Cyclone Separator		☐
☐	☒	Form ESP – Electrostatic Precipitator		☐
☒	☐	Form BCE– Baghouses Control Equipment	Please specify number of BCEs attached: 14	☐
☒	☐	Form SCE– Scrubbers Control Equipment	Please specify number of SCEs attached: 3	☐
☐	☒	Form VSCE – Venturi Scrubber Control Equipment		☐
☐	☒	Form CAM – Compliance Assurance Monitoring		☐
☒	☐	Forms EI-– Emissions Inventory		☐
☒	☐	PP – Plot Plan		☐
☒	☐	Forms MI1 – MI4 – Modeling	(Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability		☐

1.2 Form GI – Facility Information

The general facility and permit information is provided on the form GI. This form also includes the certification of truth, accuracy, and completeness signed by a responsible official, in accordance with IDAPA 58.01.01.123 and 124.

DEQ AIR QUALITY PROGRAM
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Air Permit Hotline – 1-877-5PERMIT

General Information - **Form GI**
10/29/18

Please see instructions on second page before filling out the form.

FACILITY AND PERMIT INFORMATION

1. Facility Name:	2. Facility ID Number:
Stibnite Gold Project	
3. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.
4. Facility Contact Name:	5. Facility Contact Title:
Alan Haslam	Vice President – Permitting
6. Facility Contact Telephone Number:	7. Facility Contact Email:
208-901-3053	ahaslam@midasgoldinc.com
8. Mailing address where permit will be sent (street/city/state/zip code):	9. Physical address of facility (if different than mailing address) (street/city/state/zip code):
405 South 8th Street, Suite 201 Boise, ID 83702	Intersection of FS Road NF-374 and NF-412 Stibnite, ID 83611
10. County Facility is located	Valley
11. Is the equipment portable?	☒ No ☐ Yes
12. NAICS codes	Primary NAICS: 212221 – Gold Ore Mining Or 21222 – Gold Ore and Silber Ore Mining Secondary NAICS (if applicable): 327410 - Lime Manufacturing
13. Brief business description and principal product produced:	Redevelopment of portions of the Stibnite Mining District. The Stibnite Gold Project consists of cleaning up legacy impacts, restore the salmon fishery, and the building, operating and proper closure of a new mine. The estimated mineral resources at the project are gold and antimony.
14. Describe any contiguous or adjacent facility this company owns or operates:	N/A
15. Permit Application Type. Provide Permit Number for existing permit. For a PTC, an application fee is required.	☒ Initial Permit to Construct (PTC) ☐ PTC Modification — PTC No. _____ Issued Date _____ ☐ Initial Tier II ☐ Tier II Modification ☐ Tier II Renewal — Tier II No. _____ Issued Date _____ ☐ Initial Tier I ☐ Tier I Administrative Amendment ☐ Tier I Minor Modification ☐ Tier I Significant Modification ☐ Tier I Renewal — Tier I No. _____ Issued Date _____
16. **For Tier I permitted facilities only:** If you are applying for a PTC then you must specify how the PTC will be incorporated into the Tier I permit.	☐ Incorporate PTC at the time of Tier I renewal (IDAPA 58.01.01.209.05.a) ☐ Co-process PTC with Tier I Modification (IDAPA 58.01.01.209.05.b) ☐ Administrative amend the Tier I to incorporate PTC upon applicant's request (IDAPA 58.01.01.209.05.c)
17. ☒ Check here to request facility draft permit before final issuance.	

Certification of Truth, Accuracy, and Completeness (by Responsible Official)
I hereby certify that based on information and belief formed after reasonable inquiry, the statements and information contained in this and any attached and/or referenced document(s) are true, accurate, and complete in accordance with IDAPA 58.01.01.123 124.

	Vice President - Permitting	
Responsible Official Signature	*Responsible Official Title*	*Date*
Alan Haslam		
Print or Type Responsible Official Name		

1.3 Form EU0 – Emissions Units – General (57 forms)

Table 1 provides a list of the general emission units. Emissions data for each unit can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 1. General Emission Units

Form #	Source ID	Description	Control	Process Rate
1	OC1	Loader Transfer of Ore to Grizzly	Water Sprays	25,000 ton/day, Ore
2	OC2	Grizzly to Apron Feeder	Moisture Carry-Over	25,000 ton/day, Ore
3	OC3	Apron Feeder to Dribble Conveyor	Moisture Carry-Over	25,000 ton/day, Ore
4	OC4	Apron Feeder to Vibrating Grizzly	Moisture Carry-Over	25,000 ton/day, Ore
5	OC5	Dribble Conveyor to Vibrating Grizzly	Moisture Carry-Over	25,000 ton/day, Ore
6	OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	Moisture Carry-Over	25,000 ton/day, Ore
7	OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	Water Sprays	25,000 ton/day, Ore
8	OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	Moisture Carry-Over	25,000 ton/day, Ore
9	OC9	Stockpile Transfers to Reclaim Conveyors	Underground	27,600 ton/day, Ore
10	OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	Underground	27,600 ton/day, Ore
11	OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	Enclosure	27,600 ton/day, Ore
12	OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	Water Sprays	27,600 ton/day, Ore
13	OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	Moisture Carry-Over	27,600 ton/day, Ore
14	LS1L	Mill Lime Silo #1 Loading	Bin Vent Filter	250 ton/day, 4,375 ton/yr, Lime
15	LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	None	250 ton/day, 4,375 ton/yr, Lime
16	MillS2L	Mill Lime Silo #2 Loading	Bin Vent Filter	250 ton/day, 4,375 ton/yr, Lime
17	MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	None	250 ton/day, 4,375 ton/yr, Lime
18	Sb2	Sb Bagging	Baghouse (BH1)	4.5 ton/hr, Stib. Conc.
19	AC	Autoclave	Wet Scrubber (WS1)	290 ton/hr, Float Conc.
20	ACS1L	AC Lime Silo #1 Loading	Bin Vent Filter	1,000 ton/day, 17,500 ton/yr, Lime

Form #	Source ID	Description	Control	Process Rate
21	ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	None	17,500 ton/yr, Lime
22	ACS2L	AC Lime Silo #2 Loading	Bin Vent Filter	1,000 ton/day, 17,500 ton/yr, Lime
23	ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	None	17,500 ton/yr, Lime
24	ACS3L	AC Lime Silo #3 Loading	Bin Vent Filter	1,000 ton/day, 17,500 ton/yr, Lime
25	ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	None	1,7500 ton/yr, Lime
26	ACS4L	AC Lime Silo #4 Loading	Bin Vent Filter	500 ton/day, 8,750 ton/yr, Lime
27	ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	None	8,750 ton/yr, Lime
28	CKD	Carbon Regeneration Kiln (Drum)	Wet Scrubber (WS2) / Carbon Filter (CA1)	0.3 ton/hr, Carbon
29	EW	Electrowinning Cells & Pregnant Solution Tank	Shared Carbon Filter (CA2)	100 gpm, Au Conc.
30	MR	Mercury Retort	Condenser / Carbon Filter (CA3)	0.5 ton/batch, 21 ton/yr, Au Conc.
31	MF	Induction Melting Furnace	Baghouse (BH2) / Carbon Filter (CA4)	0.5 ton/batch, 21 ton/yr, Au Conc.
32	PSL	Prill Silos Loading (2 x 100 ton)	None	7,300 ton/yr, combined, Prill
33	PSU	Prill Silos Unloading (2 x 100 ton)	None	7,300 ton/yr, combined, Prill
34	CS1L	Cement/Shotcrete Silo #1 Loading	Bin Vent Filter	80 ton/day, 60,000 ton/yr, Cement
35	CS1U	Cement/Shotcrete Silo #1 Unloading	None	80 ton/day, 60,000 ton/yr, Cement
36	CS2L	Cement/Shotcrete Silo #2 Loading	Bin Vent Filter	80 ton/day, 60,000 ton/yr, Cement
37	CS2U	Cement/Shotcrete Silo #2 Unloading	None	80 ton/day, 60,000 ton/yr, Cement
38	CAL	Aggregate Bin Loading	None	2,400 ton/day, 500,000 ton/yr, Aggregate
39	CAU	Aggregate Bin Unloading	None	2,400 ton/day, 500,000 ton/yr, Aggregate
40	CM	Central Mixer Loading	TBD*	2,480 ton/day, 560,000 ton/yr, Cement + Aggregate
41	TG1	Mine Site Gasoline Tank #1	None	250,000 gal/yr, Gasoline
42	TG2	Mine Site Gasoline Tank #2	None	250,000 gal/yr, Gasoline
43	TD3	Mine Site Diesel Tank #3	None	725,000 gal/yr, Diesel
44	TD4	Mine Site Diesel Tank #4	None	725,000 gal/yr, Diesel

Form #	Source ID	Description	Control	Process Rate
45	TD5	Mine Site Diesel Tank #5	None	725,000 gal/yr, Diesel
46	TD6	Mine Site Diesel Tank #6	None	725,000 gal/yr, Diesel
47	TD7	Mine Site Diesel Tank #7	None	725,000 gal/yr, Diesel
48	TD8	Mine Site Diesel Tank #8	None	725,000 gal/yr, Diesel
49	TD9	Mine Site Diesel Tank #9	None	725,000 gal/yr, Diesel
50	TD10	Mine Site Diesel Tank #10	None	725,000 gal/yr, Diesel
51	PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	Water Sprays/Moisture Carry-Over	2,000 ton/day, Aggregate
52	PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	Water Sprays/Moisture Carry-Over	2,000 ton/day, Aggregate
53	LSBM	Limestone Ball Mill	Baghouse (BH3)	1,130 ton/day, Limestone
54	LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	Baghouse (BH4)	169 ton/day, 52,377 ton/yr, Lime
55	LCR	Lime Mill Crushing and associated transfers In and Out	Baghouse (BH5)	169 ton/day, 52,377 ton/yr, Lime
56	LSL	Pebble Lime Silo Loading via Bucket Elevator	Bin Vent Filter	169 ton/day, 52,377 ton/yr, Lime
57	LSU	Pebble Lime Silo discharge to Lime Slaker	Wet Scrubber (WS3)	169 ton/day, 52,377 ton/yr, Lime

* Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central duct collection systems, and the like.

DEQ AIR QUALITY PROGRAM
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Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	LOADER TRANSFER OF ORE TO GRIZZLY
6.	EU ID Number:	OC1
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Water Sprays		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC1		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

DEQ AIR QUALITY PROGRAM
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Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	GRIZZLY TO APRON FEEDER
6.	EU ID Number:	OC2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC2		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

DEQ AIR QUALITY PROGRAM
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Air Permit Hotline – 1-877-5PERMIT

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	APRON FEEDER TO DRIBBLE CONVEYOR
6.	EU ID Number:	OC3
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC3		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	APRON FEEDER TO VIBRATING GRIZZLY
6.	EU ID Number:	OC4
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC4		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	DRIBBLE CONVEYOR TO VIBRATING GRIZZLY
6.	EU ID Number:	OC5
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC5		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	VIBRATING GRIZZLY TO PRIMARY CRUSHER OR STOCKPILE
6.	EU ID Number:	OC6
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC6		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PRIMARY CRUSHER AND ASSOCIATED TRANSFERS
6.	EU ID Number:	OC7
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Water Sprays		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC7		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, tertiary crushing, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	ORE STOCKPILE FEED CONVEYOR TRANSFER TO STOCKPILE
6.	EU ID Number:	OC8
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC8		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	25,000 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	STOCKPILE TRANSFERS TO RECLAIM CONVEYORS
6.	EU ID Number:	OC9
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	27,600 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Underground		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC9		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	80%	80%				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency based on AP42, Chapter 13.2.4, reduction in EF due to wind speed

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	27,600 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	RECLAIM CONVEYOR DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	RECLAIM CONVEYORS TO SAG MILL FEED CONVEYOR
6.	EU ID Number:	OC10
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	27,600 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Underground		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC10		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	80%	80%				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency based on AP42, Chapter 13.2.4, reduction in EF due to wind speed

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	27,600 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	SAG MILL FEED CONVEYOR DESIGN RATE

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Emissions Unit - General **Form EU0**
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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	SAG MILL FEED CONVEYOR TRANSFER TO SAG MILL
6.	EU ID Number:	OC11
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	27,600 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	ENCLOSURE		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC11		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	80%	80%				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency based on AP42, Chapter 13.2.4, reduction in EF due to wind speed

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	27,600 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	SAG MILL DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PEBBLE CRUSHER AND ASSOCIATED TRANSFERS
6.	EU ID Number:	OC12
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	27,600 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Water Sprays		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC12		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, tertiary crushing, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	27,600 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PEBBLE CRUSHER DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PEBBLE DISCHARGE CONVEYOR TO SAG MILL CONVEYOR
6.	EU ID Number:	OC13
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	27,600 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Moisture Carry-over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	OC13		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, conveyor transfer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	27,600 TON/DAY, ORE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	PEBBLE CRUSHER DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MILL LIME SILO #1 LOADING
6.	EU ID Number:	LS1L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	60 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LS1L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	250 TON/DAY, 4,375 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MILL LIME SILO #1 UNLOADING TO SAG MILL CONVEYOR
6.	EU ID Number:	LS1U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	250 TON/DAY, 4,375 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MILL LIME SILO #2 LOADING
6.	EU ID Number:	MILLS2L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	60 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	MILLS2L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	250 TON/DAY, 4,375 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MILL LIME SILO #2 UNLOADING TO SAG MILL CONVEYOR
6.	EU ID Number:	MILLS2U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	250 TON/DAY, 4,375 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	ANTIMONY (SB) BAGGING
6.	EU ID Number:	SB2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	4.5 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	BAGHOUSE (BH1)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	SB2		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factor

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AUTOCLAVE
6.	EU ID Number:	AC
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	290 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	WET SCRUBBER (WS1)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	AC		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. PM control efficiency included in emission factors

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC LIME SILO #1 LOADING
6.	EU ID Number:	ACS1L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	120 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	ACS1L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	1,000 TON/DAY, 17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC SILO #1 UNLOADING TO LIME SLAKER
6.	EU ID Number:	ACS1U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC LIME SILO #2 LOADING
6.	EU ID Number:	ACS2L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	120 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	ACS2L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	1,000 TON/DAY, 17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC SILO #2 UNLOADING TO LIME SLAKER
6.	EU ID Number:	ACS2U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC LIME SILO #3 LOADING
6.	EU ID Number:	ACS3L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	120 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	ACS3L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	1,000 TON/DAY, 17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC SILO #3 UNLOADING TO LIME SLAKER
6.	EU ID Number:	ACS3U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	17,500 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC LIME SILO #4 LOADING
6.	EU ID Number:	ACS4L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	120 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	ACS4L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	500 TON/DAY, 8,750 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AC SILO #4 UNLOADING TO LIME SLAKER
6.	EU ID Number:	ACS42U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:			
15. Date of Installation:		16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:			
18. ID(s) of Emission Unit Controlled:			
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	8,750 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE PROCESSING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CARBON REGENERATION KILN (DRUM)
6.	EU ID Number:	CKD
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	0.3 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	WET SCRUBBER (WS2)/CARBON FILTER (CA1)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	CKD		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. PM control efficiency included in emission factor, Mercury control efficiency TBD.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	ELECTROWINNING CELLS & PREGNANT SOLUTION TANK
6.	EU ID Number:	EW
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	100 GALLON/MINUTE
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	SHARED CARBON FILTER (CA2)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	EW		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Mercury control efficiency TBD

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☒ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MERCURY RETORT
6.	EU ID Number:	MR
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	0.5 TON/BATCH
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	CONDENSER/CARBON FILTER (CA3)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	MR		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	N/A	N/A	N/A	N/A	N/A	N/A

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Mercury control efficiency TBD

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	24 HRS/DAY, 1,248 HR/YR
23.	Maximum Operation:	24 HRS/DAY, 1,248 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☒ Operation Hour Limit(s):	1,248 HR/YR
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	52 BATCHES PER YEAR

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	INDUCTION MELTING FURNACE
6.	EU ID Number:	MF
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	0.5 TON/BATCH
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	BAGHOUSE (BH2)/CARBON FILTER (CA4)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	MF		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF	N/A	N/A	N/A	N/A

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. PM control efficiency included in emission factor. Mercury control efficiency TBD.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	12 HR/DAY, 624 HR/YR
23.	Maximum Operation:	12 HR/DAY, 624 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☒ Operation Hour Limit(s):	624 HR/YR
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	52 BATCHES PER YEAR

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PRILL SILOS LOADING (2 X 100 TON)
6.	EU ID Number:	PSL
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	100 TON/HR, EACH
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	7,300 TON/YR, TOTAL, PRILL
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE MINING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PRILL SILOS UNLOADING (2 X 100 TON)
6.	EU ID Number:	PSU
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	100 TON/HR, EACH
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	7,300 TON/YR, TOTAL, PRILL
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON ORE MINING DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CEMENT/SHOTCRETE SILO #1 LOADING
6.	EU ID Number:	CS1L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	80 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	CS1L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	80 TON/DAY, 60,000 TON/YR, CEMENT
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CEMENT/SHOTCRETE SILO #1 UNLOADING
6.	EU ID Number:	CS1U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
15. Date of Installation:	16. Date of Modification (if any):
17. Manufacturer and Model Number:	
18. ID(s) of Emission Unit Controlled:	
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	80 TON/DAY, 60,000 TON/YR, CEMENT
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CEMENT/SHOTCRETE SILO #2 LOADING
6.	EU ID Number:	CS2L
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	80 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	CS2L		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, pneumatic loading, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	80 TON/DAY, 60,000 TON/YR, CEMENT
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CEMENT/SHOTCRETE SILO #2 UNLOADING
6.	EU ID Number:	CS2U
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	20 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	80 TON/DAY, 60,000 TON/YR, CEMENT
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AGGREGATE BIN LOADING
6.	EU ID Number:	CAL
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	100 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	2,400 TON/DAY, 500,000 TON/YR, AGGREGATE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	AGGREGATE BIN UNLOADING
6.	EU ID Number:	CAU
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	100 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	2,400 TON/DAY, 500,000 TON/YR, AGGREGATE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	CENTRAL MIXER LOADING
6.	EU ID Number:	CM
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	(20 CEMENT + 100 AGGREGATE) 120 TON/HR
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	TBD		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	CM		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-2, central mixer, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	2,480 TON/DAY, 560,000 TON/YR, CEMENT + AGG
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BATCH PLANT DESIGN RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE GASOLINE TANK #1
6.	EU ID Number:	TG1
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	5,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	250,000 GAL/YR, GASOLINE
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE GASOLINE TANK #2
6.	EU ID Number:	TG2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	5,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	250,000 GAL/YR, GASOLINE
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #3
6.	EU ID Number:	TD3
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #4
6.	EU ID Number:	TD4
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #5
6.	EU ID Number:	TD5
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #6
6.	EU ID Number:	TD6
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #7
6.	EU ID Number:	TD7
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #8
6.	EU ID Number:	TD8
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #9
6.	EU ID Number:	TD9
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MINE SITE DIESEL TANK #10
6.	EU ID Number:	TD10
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	25,000 GALLONS
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:		
15. Date of Installation:	16. Date of Modification (if any):	
17. Manufacturer and Model Number:		
18. ID(s) of Emission Unit Controlled:		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No	
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)	

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	725,000 GAL/YR, DIESEL
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON MINE PLAN

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Emissions Unit - General **Form EU0**
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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PORTABLE CRUSHING & SCREENING PLANT 1
6.	EU ID Number:	PCSP1
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	2,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Water Sprays & Moisture Carry-Over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	PCSP1		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	2,000 TON/DAY, AGGREGATE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	DESIGN RATE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PORTABLE CRUSHING & SCREENING PLANT 2
6.	EU ID Number:	PCSP2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	2,000 TON/DAY
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Water Sprays & Moisture Carry-Over		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	PCSP2		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-2, controlled

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	2,000 TON/DAY, AGGREGATE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	DESIGN RATE

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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	

4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	LIMESTONE BALL MILL
6.	EU ID Number:	LSBM
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	TBD
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	BAGHOUSE (BH3)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LSBM		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-4, dry grind. w/fabric filter

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	1,130 TON/DAY, LIMESTONE
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON LIFE OF MINE LIME USAGE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PARALLEL FLOW REGENERATIVE (PFR) SHAFT LIME KILN
6.	EU ID Number:	LK
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	TBD
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	BAGHOUSE (BH4)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LK		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Table 11.17-2, 6: gas-fired PFR kiln w/fabric filter

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	169 TON/DAY, 52,377 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON LIFE OF MINE LIME USAGE

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IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	LIME MILL CRUSHING AND ASSOCIATED TRANSFERS
6.	EU ID Number:	LCR
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	TBD
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	BAGHOUSE (BH5)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LCR		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.19.2-4, dry grind. w/fabric filter

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	169 TON/DAY, 52,377 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	BASED ON LIFE OF MINE LIME USAGE

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PEBBLE LIME SILO LOADING VIA BUCKET ELEVATOR
6.	EU ID Number:	LSL
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	TBD
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Bin Vent Filter		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LSL		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-4, crushed material conveyor transfer w/fabric filter

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	169 TON/DAY, 52,377 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	LIME MILL CRUSHING DISCHARGE RATE

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Emissions Unit - General **Form EU0**
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Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PEBBLE LIME SILO DISCHARGE TO LIME SLAKER
6.	EU ID Number:	LSU
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TBD
9.	Model:	TBD
10..	Maximum Capacity:	TBD
11.	Date of Construction:	TBD
12.	Date of Modification (if any):	N/A
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	Wet Scrubber (WS3)		
15. Date of Installation:	TBD	16. Date of Modification (if any):	N/A
17. Manufacturer and Model Number:	TBD		
18. ID(s) of Emission Unit Controlled:	LSU		
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No		
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	In EF	In EF				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. Control efficiency included in emission factors, AP42, Tab. 11.12-4, crushed material conveyor transfer w/ fabric filter

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	8,760 HR/YR
23.	Maximum Operation:	8,760 HR/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☒ Production Limit(s):	169 TON/YR, 52,377 TON/YR, LIME
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	LIME MILL CRUSHING DISCHARGE RATE

1.4 Form EU1 – Emission Units Industrial IC Engine Information (4 forms)

Table 2 provides a list of the industrial internal combustion (IC) emission units. The actual manufacturer and model are to be determined. IC engine exhaust stack parameters used for the ambient impact assessment are provided on the forms. Emissions data for each unit can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 2. Industrial IC Engines

Form #	Source ID	Description	Power Rating	Ignition Type	Fuel	Assumed Displacement
1	EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	1,000 kW	Compression	Diesel	<10 liters/cylinder
2	EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	1,000 kW	Compression	Diesel	<10 liters/cylinder
3	EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	1,000 kW	Compression	Diesel	<10 liters/cylinder
4	EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	200 kW	Compression	Diesel	<10 liters/cylinder

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Emissions Units Industrial IC Engine Information - **Form EU1**
Revision 9
10/23/13

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: EDG1, Camp Emergency Generator (1,000 kW)

IC ENGINE DESCRIPTION AND SPECIFICATIONS

4. Type of unit:
- ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____
- ☐ Full-time operation (non-emergency standby use)?
- ☒ Emergency standby use only (operation limited to 100 hrs/yr for maintenance and testing and emergency use only)?
- ☐ Emergency fire pump use only?
- ☐ Stationary test cell/stand operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ National security operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ Institutional emergency standby IC engine (as defined in NSPS Subpart ZZZZ)?

IC ENGINE SPECIFICATIONS

Questions 5 through 15 apply to **all IC engines**.

5. IC Engine Manufacturer: TBD 6. Model: TBD 7. Date manufactured: After 2007 8. Model year: After 2007
9. Date of installation (if an existing IC engine): TBD 10. IC Engine cylinder displacement: < 10 liters per cylinder
11. Maximum rated horsepower (per the data plate/manufacturer specifications): 1,341 bhp
12. EPA Certification: Tier certification number TBD or ☐ None/not tier certified
13. Ignition type: ☐ Spark ☒ Compression
14. Fuel combusted in the IC engine? ☒ Distillate fuel oil ☐ Natural gas/LNG ☐ LPG/propane
    If distillate fuel oil (#1, #2, or a mixture) is used, what is the maximum sulfur content? ☒ 15 ppm (0.0015% by weight) ☐ 500 ppm (0.05% by weight)
15. IC engine exhaust stack parameters: Diameter 18 inches Height 7 feet Temperature 1,100 ºF Flow rate 10,328 acfm

IC ENGINE EMISSIONS PARAMETERS

Questions 16 through 27 apply to **full-time** non-Tier certified IC engines or Tier certified IC engines manufactured prior to July 11, 2005. If you are proposing a Tier certified IC engine manufactured on and after July 11, 2005 or an emergency standby IC engine do not answer questions 17 through 27.

16. Testing schedule (for emergency standby IC engines only): 24 hrs/day _____ hrs/mon _____ hrs/qtr 100 hrs/yr
17. Maximum daily operation: _____ hrs/day 18. Maximum annual operation: _____ hrs/yr **Note:** These operational limits will be placed in the permit.
19. Will CO emissions be limited to a specific ppmvd (i.e. 49 or 23 ppmvd)? ☐ Yes ☐ No 20. What will the CO emissions limit be? _____ ppmvd
21. Will CO emissions be reduced by 70% or more? ☐ Yes ☐ No
22. Will a CEMS (Continuous Emissions Monitoring System) be used to measure pollutants in the IC engine exhaust stream? ☐ Yes ☐ No
23. Will a CPMS (Continuous Parameters Monitoring System) be used to measure parameters of the IC engine exhaust stream? ☐ Yes ☐ No
24. Will the IC engine be equipped with an oxidation catalyst? ☐ Yes ☐ No
25. If applicable, will the oxidation catalyst be equipped with a temperature measurement system to ensure it is operating properly? ☐ Yes ☐ No
26. Will the IC engine be equipped with a diesel particulate filter? ☐ Yes ☐ No
27. If applicable, will the diesel particulate filter be equipped with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached? ☐ Yes ☐ No

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Emissions Units Industrial IC Engine Information - **Form EU1**
Revision 9
10/23/13

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: EDG2, Plant Emergency Generator #1 (1,000 kW)

IC ENGINE DESCRIPTION AND SPECIFICATIONS

4. Type of unit:
- ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____
- ☐ Full-time operation (non-emergency standby use)?
- ☒ Emergency standby use only (operation limited to 100 hrs/yr for maintenance and testing and emergency use only)?
- ☐ Emergency fire pump use only?
- ☐ Stationary test cell/stand operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ National security operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ Institutional emergency standby IC engine (as defined in NSPS Subpart ZZZZ)?

IC ENGINE SPECIFICATIONS

Questions 5 through 15 apply to **all IC engines**.

5. IC Engine Manufacturer: TBD 6. Model: TBD 7. Date manufactured: After 2007 8. Model year: After 2007
9. Date of installation (if an existing IC engine): TBD 10. IC Engine cylinder displacement: < 10 liters per cylinder
11. Maximum rated horsepower (per the data plate/manufacturer specifications): 1,341 bhp
12. EPA Certification: Tier certification number TBD or ☐ None/not tier certified
13. Ignition type: ☐ Spark ☒ Compression
14. Fuel combusted in the IC engine? ☒ Distillate fuel oil ☐ Natural gas/LNG ☐ LPG/propane
    If distillate fuel oil (#1, #2, or a mixture) is used, what is the maximum sulfur content? ☒ 15 ppm (0.0015% by weight) ☐ 500 ppm (0.05% by weight)
15. IC engine exhaust stack parameters: Diameter 18 inches Height 7 feet Temperature 1,100 ºF Flow rate 10,328 acfm

IC ENGINE EMISSIONS PARAMETERS

Questions 16 through 27 apply to **full-time** non-Tier certified IC engines or Tier certified IC engines manufactured prior to July 11, 2005. If you are proposing a Tier certified IC engine manufactured on and after July 11, 2005 or an emergency standby IC engine do not answer questions 17 through 27.

16. Testing schedule (for emergency standby IC engines only): 24 hrs/day _____ hrs/mon _____ hrs/qtr 100 hrs/yr
17. Maximum daily operation: _____ hrs/day 18. Maximum annual operation: _____ hrs/yr **Note:** These operational limits will be placed in the permit.
19. Will CO emissions be limited to a specific ppmvd (i.e. 49 or 23 ppmvd)? ☐ Yes ☐ No 20. What will the CO emissions limit be? _____ ppmvd
21. Will CO emissions be reduced by 70% or more? ☐ Yes ☐ No
22. Will a CEMS (Continuous Emissions Monitoring System) be used to measure pollutants in the IC engine exhaust stream? ☐ Yes ☐ No
23. Will a CPMS (Continuous Parameters Monitoring System) be used to measure parameters of the IC engine exhaust stream? ☐ Yes ☐ No
24. Will the IC engine be equipped with an oxidation catalyst? ☐ Yes ☐ No
25. If applicable, will the oxidation catalyst be equipped with a temperature measurement system to ensure it is operating properly? ☐ Yes ☐ No
26. Will the IC engine be equipped with a diesel particulate filter? ☐ Yes ☐ No
27. If applicable, will the diesel particulate filter be equipped with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached? ☐ Yes ☐ No

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Emissions Units Industrial IC Engine Information - **Form EU1**
Revision 9
10/23/13

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: EDG3, Plant Emergency Generator #2 (1,000 kW)

IC ENGINE DESCRIPTION AND SPECIFICATIONS

4. Type of unit:
- ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____
- ☐ Full-time operation (non-emergency standby use)?
- ☒ Emergency standby use only (operation limited to 100 hrs/yr for maintenance and testing and emergency use only)?
- ☐ Emergency fire pump use only?
- ☐ Stationary test cell/stand operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ National security operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ Institutional emergency standby IC engine (as defined in NSPS Subpart ZZZZ)?

IC ENGINE SPECIFICATIONS

Questions 5 through 15 apply to **all IC engines**.

5. IC Engine Manufacturer: TBD 6. Model: TBD 7. Date manufactured: After 2007 8. Model year: After 2007
9. Date of installation (if an existing IC engine): TBD 10. IC Engine cylinder displacement: < 10 liters per cylinder
11. Maximum rated horsepower (per the data plate/manufacturer specifications): 1,341 bhp
12. EPA Certification: Tier certification number TBD or ☐ None/not tier certified
13. Ignition type: ☐ Spark ☒ Compression
14. Fuel combusted in the IC engine? ☒ Distillate fuel oil ☐ Natural gas/LNG ☐ LPG/propane
    If distillate fuel oil (#1, #2, or a mixture) is used, what is the maximum sulfur content? ☒ 15 ppm (0.0015% by weight) ☐ 500 ppm (0.05% by weight)
15. IC engine exhaust stack parameters: Diameter 18 inches Height 7 feet Temperature 1,100 ºF Flow rate 10,328 acfm

IC ENGINE EMISSIONS PARAMETERS

Questions 16 through 27 apply to **full-time** non-Tier certified IC engines or Tier certified IC engines manufactured prior to July 11, 2005. If you are proposing a Tier certified IC engine manufactured on and after July 11, 2005 or an emergency standby IC engine do not answer questions 17 through 27.

16. Testing schedule (for emergency standby IC engines only): 24 hrs/day _____ hrs/mon _____ hrs/qtr 100 hrs/yr
17. Maximum daily operation: _____ hrs/day 18. Maximum annual operation: _____ hrs/yr **Note:** These operational limits will be placed in the permit.
19. Will CO emissions be limited to a specific ppmvd (i.e. 49 or 23 ppmvd)? ☐ Yes ☐ No 20. What will the CO emissions limit be? _____ ppmvd
21. Will CO emissions be reduced by 70% or more? ☐ Yes ☐ No
22. Will a CEMS (Continuous Emissions Monitoring System) be used to measure pollutants in the IC engine exhaust stream? ☐ Yes ☐ No
23. Will a CPMS (Continuous Parameters Monitoring System) be used to measure parameters of the IC engine exhaust stream? ☐ Yes ☐ No
24. Will the IC engine be equipped with an oxidation catalyst? ☐ Yes ☐ No
25. If applicable, will the oxidation catalyst be equipped with a temperature measurement system to ensure it is operating properly? ☐ Yes ☐ No
26. Will the IC engine be equipped with a diesel particulate filter? ☐ Yes ☐ No
27. If applicable, will the diesel particulate filter be equipped with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached? ☐ Yes ☐ No

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Emissions Units Industrial IC Engine Information - **Form EU1**
Revision 9
10/23/13

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: EDFP, Mill Fire Pump (200 kW)

IC ENGINE DESCRIPTION AND SPECIFICATIONS

4. Type of unit:
- ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____
- ☐ Full-time operation (non-emergency standby use)?
- ☐ Emergency standby use only (operation limited to 100 hrs/yr for maintenance and testing and emergency use only)?
- ☒ Emergency fire pump use only?
- ☐ Stationary test cell/stand operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ National security operation only (as defined in NSPS Subpart ZZZZ)?
- ☐ Institutional emergency standby IC engine (as defined in NSPS Subpart ZZZZ)?

IC ENGINE SPECIFICATIONS

Questions 5 through 15 apply to **all IC engines**.

5. IC Engine Manufacturer: TBD 6. Model: TBD 7. Date manufactured: After 2009 8. Model year: After 2009
9. Date of installation (if an existing IC engine): TBD 10. IC Engine cylinder displacement: < 10 liters per cylinder
11. Maximum rated horsepower (per the data plate/manufacturer specifications): 268 bhp
12. EPA Certification: Tier certification number TBD or ☐ None/not tier certified
13. Ignition type: ☐ Spark ☒ Compression
14. Fuel combusted in the IC engine? ☒ Distillate fuel oil ☐ Natural gas/LNG ☐ LPG/propane
    If distillate fuel oil (#1, #2, or a mixture) is used, what is the maximum sulfur content? ☒ 15 ppm (0.0015% by weight) ☐ 500 ppm (0.05% by weight)
15. IC engine exhaust stack parameters: Diameter 9 inches Height 7 feet Temperature 1,100 ºF Flow rate 2,066 acfm

IC ENGINE EMISSIONS PARAMETERS

Questions 16 through 27 apply to **full-time** non-Tier certified IC engines or Tier certified IC engines manufactured prior to July 11, 2005. If you are proposing a Tier certified IC engine manufactured on and after July 11, 2005 or an emergency standby IC engine do not answer questions 17 through 27.

16. Testing schedule (for emergency standby IC engines only): _____ hrs/day _____ hrs/mon _____ hrs/qtr _____ hrs/yr
17. Maximum daily operation: _____ hrs/day 18. Maximum annual operation: _____ hrs/yr **Note:** These operational limits will be placed in the permit.
19. Will CO emissions be limited to a specific ppmvd (i.e. 49 or 23 ppmvd)? ☐ Yes ☐ No 20. What will the CO emissions limit be? _____ ppmvd
21. Will CO emissions be reduced by 70% or more? ☐ Yes ☐ No
22. Will a CEMS (Continuous Emissions Monitoring System) be used to measure pollutants in the IC engine exhaust stream? ☐ Yes ☐ No
23. Will a CPMS (Continuous Parameters Monitoring System) be used to measure parameters of the IC engine exhaust stream? ☐ Yes ☐ No
24. Will the IC engine be equipped with an oxidation catalyst? ☐ Yes ☐ No
25. If applicable, will the oxidation catalyst be equipped with a temperature measurement system to ensure it is operating properly? ☐ Yes ☐ No
26. Will the IC engine be equipped with a diesel particulate filter? ☐ Yes ☐ No
27. If applicable, will the diesel particulate filter be equipped with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached? ☐ Yes ☐ No

1.5 Form EU2– Emissions Units Nonmetallic Mineral Processing Plant

This form requests information about equipment at a nonmetallic mineral processing plant, as defined in 40 CFR 60.671, that **generates fugitive emissions only**. Table 3 provides a list of the Stibnite Gold Project nonmetallic mineral processing plant fugitive emission sources.

In addition to form EU2, forms EU0 and BCE have been provided for the Limestone Ball Mill and associated baghouse (BH3) as part of this application.

Emissions data for each unit can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 3. Nonmetallic Mineral Processing Plant Emission Units – Fugitive Emissions Only

Source ID	Description	Source Type	Control
LS1	Limestone transfer to Primary Crusher Hopper	Conveyor	None
LS2	Primary Crushing and Associated Transfers In and Out	Crusher	None
LS3	Primary Screening and Associated Transfers In and Out	Screen	None
LS4	Secondary Crushing and Associated Transfers In and Out	Crusher	None
LS5	Secondary Screening and Associated Transfers In and Out	Screen	None
LS6	Limestone transfer to Ball Mill Feed Bin	Conveyor	None
LS7	Limestone transfer to Ball Mill Feed Conveyor	Conveyor	None
LS8	Ball Mill Feed transfer to Ball Mill	Conveyor	None
LS9	Limestone transfer to Kiln Feed Bin	Conveyor	None
LS10	Limestone transfer to Lime Kiln Feed Conveyor	Conveyor	None
LS11	Fines Screening and Associated Transfers In and Out	Screen	None
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	Conveyor	None

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Emissions Units - Nonmetallic Mineral Processing Plant **Form EU2**
Revision 5
08/28/08

Please see instructions on page 3 before filling out the form.

This form requests information about equipment at a nonmetallic mineral processing plant, as defined in 40 CFR 60.671, that generates fugitive emissions only.

In addition, Form EU0 and appropriate control equipment forms should be used for each stack emission point from the same plant.

IDENTIFICATION		
1. Company Name:	2. Facility Name:	3. Facility ID No:
Midas Gold Idaho, Inc.	Stibnite Gold Project	
4. Brief Project Description:	Open-pit mining and onsite onsite ore preparation and gold extraction processes.	

EQUIPMENT (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS					
5. Equipment Description	6. Construction Date	7. Serial Number	8. Equipment ID Number (company's)	9. Rated Capacity	10. Emission Control Type
Transfer to Primary Crusher Hopper	TBD	TBD	LS1	1,130 ton/day	None
Primary Crusher	TBD	TBD	LS2	1,130 ton/day	None
Primary Screen	TBD	TBD	LS3	1,130 ton/day	None
Secondary Crusher	TBD	TBD	LS4	1,130 ton/day	None
Secondary Screen	TBD	TBD	LS5	1,130 ton/day	None
Transfer to Ball Mill Feed Bin	TBD	TBD	LS6	1,130 ton/day	None
Transfer to Ball Mill Feed Conveyor	TBD	TBD	LS7	1,130 ton/day	None
Ball Mill Feed transfer to Ball Mill	TBD	TBD	LS8	1,130 ton/day	None
Transfer to Kiln Feed Bin	TBD	TBD	LS9	267 ton/day	None
Transfer to Lime Kiln Feed Conveyor	TBD	TBD	LS10	267 ton/day	None
Fines Screen	TBD	TBD	LS11	267 ton/day	None
Kiln Feed transfer to PFR Shaft Lime Kiln	TBD	TBD	LS12	267 ton/day	None

OPERATING SCHEDULE (hours/day, or hours/week, or months/year, or other)	
11 Actual Operation	TBD
12. Maximum Operation	24 hr/day, 8,760 hr/yr

1.6 Form EU5 – Emissions Units Industrial Boiler Information (15 forms)

Table 4 provides a list of the industrial boiler emission units. The actual manufacturer and model are to be determined. Exhaust stack parameters used for the ambient impact assessment are provided on the forms. Emissions data for each unit can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 4. Industrial Boiler Emission Units

Form #	Source ID	Description	MMBtu/hr	Fuel
1	Sb1	Sb Dryer	2.72	Propane
2	ACB	POX Boiler	17	Propane
3	CKB	Carbon Regeneration Kiln	2.255	Propane
4	PV	Propane Vaporizer	0.1	Propane
5	HS	Strip Circuit Solution Heater	5	Propane
6	H1M	Mine Air Heater #1	4	Propane
7	H2M	Mine Air Heater #2	4	Propane
8	HM	Mill HVAC Heaters	4 x 1.0	Propane
9	HAC	Autoclave HVAC Heater	0.25	Propane
10	HR	Refinery HVAC Heater	0.25	Propane
11	HA	Admin HVAC Heater	0.25	Propane
12	HMO	Mine Ops. HVAC Heaters	2 x 0.25	Propane
13	HTS	Truck Shop HVAC Heaters	2 x 1.0	Propane
14	HW	Warehouse HVAC Heaters	3 x 1.0	Propane
15	LKC	PFR Shaft Lime Kiln Combustion	22.0	Propane

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: Sb1, Sb Dryer (2.72 MMBtu/hr Propane Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: Sb1

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 12 inches Height: 150 feet Temperature: 360 ºF Flow rate: 1073 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 2.72 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal					
19. Sulfur Content (ppmv, wt%)		185 ppm					
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes This form is for: Source ID: ACB, POX Boiler (17 MMBtu/hr Propane Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: ACB

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☐ None

13. Boiler Exhaust Stack Parameters:

Diameter: 24 inches Height: 77 feet Temperature: 360 ºF Flow rate: 6703 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 17 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal					
19. Sulfur Content (ppmv, wt%)		185 ppm					
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
30 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: CKB, Carbon Regeneration Kiln (Burners) (2.255 MMBtu/hr Propane Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: CKB

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 12 inches Height: 46 feet Temperature: 360 ºF Flow rate: 889 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 2.255 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal					
19. Sulfur Content (ppmv, wt%)		185 ppm					
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes. This form is for: Source ID: PV, Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: PV

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 5 inches Height: 68 feet Temperature: 360 ºF Flow rate: 39 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 0.1 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HS, Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HS

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 16 inches Height: 46 feet Temperature: 360 ºF Flow rate: 1,972 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 5 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes. This form is for: Source ID: H1M, Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: H1M

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 16 inches Height: 7 feet Temperature: 360 ºF Flow rate: 1,577 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 4 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: H2M, Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: H2M

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 8 inches Height: 7 feet Temperature: 360 ºF Flow rate: 1,577 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 4 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HM, Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HM1, HM2, HM3, HM4

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 4 inches Height: 141 feet Temperature: 360 ºF Flow rate: 394 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 1, each MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HAC, Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HAC

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 4 inches Height: 68 feet Temperature: 360 ºF Flow rate: 99 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 0.25 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HR, Refinery HVAC Heater (0.25 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HR

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 4 inches Height: 46 feet Temperature: 360 ºF Flow rate: 99 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 0.25 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HA, Admin HVAC Heater (0.25 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HA

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 4 inches Height: 21 feet Temperature: 360 ºF Flow rate: 99 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 0.25 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HMO, Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HMO1, HMO2

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 8 inches Height: 41 feet Temperature: 360 ºF Flow rate: 99 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 0.25, each MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HTS, Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HTS1, HTS2

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 8 inches Height: 41 feet Temperature: 360 ºF Flow rate: 394 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 1, each MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		Operational Mode			Operational Mode		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: HW, Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: HW1, HW2, HW3

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 8 inches Height: 41 feet Temperature: 360 ºF Flow rate: 394 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 1, each MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal			NA		
19. Sulfur Content (ppmv, wt%)		185 ppm			NA		
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

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Emissions Units Industrial Boiler Information - **Form EU5**
Revision 6
11/26/18

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description:	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: LKC, PFR Shaft Lime Kiln Combustion

BOILER UNIT SPECIFICATIONS

4. Type of Unit: ☒ New unit ☐ Unpermitted existing unit ☐ Modification to an existing permitted unit? Permit number: _____

5. Manufacturer: TBD 6. Model: TBD 7. Manufacture Date: TBD

8. Date of installation: TBD 9. Serial Number: TBD 10. Boiler ID Number: LKC

11. Control Device (if any) None (Baghouse, ESP, or Scrubber) **Note:** Attach applicable control equipment FORM BCE, ESP, or SCE

12. Fuel Meter Used: ☐ Gaseous ☐ Liquid ☒ None

13. Boiler Exhaust Stack Parameters:

Diameter: 24 inches Height: 150 feet Temperature: 350 ºF Flow rate: 16,300 acfm
Exhaust Orientation: ☒ Vertical (unobstructed upward) ☐ Vertical (obstructed upward) ☐ Horizontal ☐ Other _____

14. Primary Burner: Manufacturer: TBD Model: TBD Max Heat Input Rating: 22.0 MMBtu/hr

15. Secondary Burner (if applicable): Manufacturer: N/A Model: N/A Max Heat Input Rating: N/A MMBtu/hr

FUEL SPECIFICATION AND EMISSION FACTORS

16. Primary Fuel Type: ☐ Natural Gas ☐ Diesel Fuel (#) ☒ LPG/Propane ☐ Other Fuel:_____

17. Secondary Fuel Type (if applicable): ☐ Natural Gas ☐ Diesel Fuel (#) ☐ LPG/Propane ☐ Other Fuel:_____

Fuel Type		Primary Fuel			Secondary Fuel		
18. Fuel Heat Value (Btu/unit, LHV)		91,500 Btu/gal					
19. Sulfur Content (ppmv, wt%)		185 ppm					
20. Manufacture's Rated or Source Test Emission Factors (if applicable)		**Operational Mode**			**Operational Mode**		
		Steady State (lbs/MMBtu)	Start Up (lb/hr)	Shut Down (lb/hr)	Steady State (lbs/MMBtu)	Start Up (lnb/hr)	Shut Down (lb/hr)
Note: Include supporting documentation	PM_{10}	AP42					
	$PM_{2.5}$	AP42					
	$N0_x$	AP42					
	CO	AP42					
	$S0_2$	AP42					
	VOC	AP42					
21. Other Pollutant(s): NA		NA					
22. Duration Operational Mode:		N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr	N/A	NA hr/day NA hr/yr	NA hr/day NA hr/yr

OPERATING LIMITS & SCHEDULE

23. Proposed Operating Limits: (hr/day, hr/yr, gal/yr, MMscf/yr, etc) **Note:** These limits will be placed in the permit:
24 hr/day, 8,760 hr/yr

FEDERAL RULES APPLICABLITY

24. NSPS or MACT Applicability: ☐ Yes ☒ No | If "yes", which subpart applies?: _____ **Note:** Form FRA must be completed.

1.7 Form CA – Carbon Adsorber (4 forms)

Table 5 provides a list of all emission units controlled by a carbon adsorber. The actual carbon adsorber information is to be determined along with operational parameters. Emissions data for each unit can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 5. Sources Controlled by a Carbon Adsorber

Form #	Source ID	Description	Control
1	CKD	Carbon Regeneration Kiln (Drum)	Carbon Filter (CA1)
2	EW	Electrowinning Cells & Pregnant Solution Tank	Carbon Filter (CA2)
3	MR	Mercury Retort	Carbon Filter (CA3)
4	MF	Induction Melting Furnace	Carbon Filter (CA4)

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Carbon Adsorber - **Form CA**
Revision 2
08/28/08

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name:	Midas Gold Idaho, Inc.	2. Facility Name:	Stibnite Gold Project	3. Facility ID No.:	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.				

CARBON ADSORBER INFORMATION

Equipment Description

5. Manufacturer:	TBD	6. Model Number:	TBD	7. Make:	TBD

8. Type	☐ Fixed regenerative beds ☐ Disposable/rechargeable canisters ☐ Traveling bed adsorbers/rotary concentrators ☐ Fluidized adsorbers	Number of beds: TBD Capacity of each bed: TBD pounds of adsorbent
9. Adsorbent Material	☒ Granulated activated carbon ☐ Zeolite, molecular sieve ☐ Synthetic adsorbent Trade name: ☐ Other:	Adsorbent capacity: TBD (pound of vapor/pound of carbon)
10. Dimensions	Adsorbent vessel diameter: TBD feet	Depth of carbon in bed: TBD feet

Waste Gas Stream Characteristics

11. Brief Description of Process	Carbon loaded with gold from the ore leaching process is stripped with a caustic solution. The stripped carbon must be periodically regenerated in the carbon regeneration kiln. The exhaust from the kiln drum passes through a carbon adsorption bed, where any mercury is adsorbed onto activated carbon before being emitted, through a stack, into the atmosphere. This form is for the Carbon Regeneration Kiln (drum), Carbon Filter CA1

12. Waste Gas Stream	Material: Mercury Check box if material is a hazardous air pollutant (HAP) ☒ ☐ ☐ ☐	**Flow rate scfm (standard conditions are 68 degrees F and 14.7 psia)** Minimum TBD Average Maximum Average concentration ppmv
	Are reactive organics present? (e.g., ketone, aldehydes) ☐ Yes ☒ No	Relative humidity: % Cycle time for adsorption: hour(s) Lower explosive limit of mixture: ppmv or % volume
	Is the adsorbent material regenerated on-site? ☐ Yes ☒ No Regeneration rate: lb/min	On-site regeneration by: ☐ Steam ☐ Air ☐ Inert gas ☐ Process gas Other: Cycle time for regeneration: hour(s)
13. Regeneration	N/A	
14. Instrumentation Data	Exhaust temperature will be measured at the carbon adsorber inlet per 63.11647(g).	
15. Operating Schedule	Normal: 24 hours/day 7 days/week 52 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year	

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Air Permit Hotline – 1-877-5PERMIT

Carbon Adsorber - **Form CA**
Revision 2
08/28/08

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name:	Midas Gold Idaho, Inc.	2. Facility Name:	Stibnite Gold Project	3. Facility ID No.:	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.				

CARBON ADSORBER INFORMATION

Equipment Description

5. Manufacturer:	TBD	6. Model Number:	TBD	7. Make:	TBD

8. Type	☐ Fixed regenerative beds ☐ Disposable/rechargeable canisters ☐ Traveling bed adsorbers/rotary concentrators ☐ Fluidized adsorbers	Number of beds: TBD Capacity of each bed: TBD pounds of adsorbent
9. Adsorbent Material	☒ Granulated activated carbon ☐ Zeolite, molecular sieve ☐ Synthetic adsorbent Trade name: ☐ Other:	Adsorbent capacity: TBD (pound of vapor/pound of carbon)
10. Dimensions	Adsorbent vessel diameter: TBD feet	Depth of carbon in bed: TBD feet

Waste Gas Stream Characteristics

11. Brief Description of Process	Carbon loaded with gold from the ore leaching process is stripped with a caustic solution. This gold-bearing solution is then sent to the electrowinning (EW) plating process. The EW cells remove the gold from the solution by plating it onto cathodes consisting of stainless-steel plates with steel wool. The EW cells exhaust passes through a carbon adsorption column, where any remaining vapor mercury is adsorbed onto activated carbon before being emitted, through a stack, into the atmosphere. This form is for the Electrowinning Cells & Pregnant Solution Tank, Carbon Filter CA2

12. Waste Gas Stream	Material: Mercury Check box if material is a hazardous air pollutant (HAP) ☒ ☐ ☐ ☐	**Flow rate scfm (standard conditions are 68 degrees F and 14.7 psia)** Minimum TBD Average Maximum Average concentration ppmv
	Are reactive organics present? (e.g., ketone, aldehydes) ☐ Yes ☒ No	Relative humidity: % Cycle time for adsorption: hour(s) Lower explosive limit of mixture: ppmv or % volume
	Is the adsorbent material regenerated on-site? ☐ Yes ☒ No Regeneration rate: lb/min	On-site regeneration by: ☐ Steam ☐ Air ☐ Inert gas ☐ Process gas Other: Cycle time for regeneration: hour(s)
13. Regeneration	N/A	
14. Instrumentation Data	Exhaust temperature will be measured at the carbon adsorber inlet per 63.11647(g).	
15. Operating Schedule	Normal: 24 hours/day 7 days/week 52 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year	

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Carbon Adsorber - **Form CA**
Revision 2
08/28/08

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name:	Midas Gold Idaho, Inc.	2. Facility Name:	Stibnite Gold Project	3. Facility ID No.:	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.				

CARBON ADSORBER INFORMATION

Equipment Description

5. Manufacturer:	TBD	6. Model Number:	TBD	7. Make:	TBD

8. Type	☐ Fixed regenerative beds ☐ Disposable/rechargeable canisters ☐ Traveling bed adsorbers/rotary concentrators ☐ Fluidized adsorbers	Number of beds: TBD Capacity of each bed: TBD pounds of adsorbent
9. Adsorbent Material	☒ Granulated activated carbon ☐ Zeolite, molecular sieve ☐ Synthetic adsorbent Trade name: ☐ Other:	Adsorbent capacity: TBD (pound of vapor/pound of carbon)
10. Dimensions	Adsorbent vessel diameter: TBD feet	Depth of carbon in bed: TBD feet

Waste Gas Stream Characteristics

11. Brief Description of Process	The gold concentrate is loaded into the retort, where it is heated under vacuum to drive off the mercury. The retort exhaust passes through a shell and tube condenser to cool the exhaust and condense the vapor mercury into a liquid, which is collected by the mercury trap. The exhaust passes through a carbon adsorption column, where any remaining vapor mercury is adsorbed onto sulfur-impregnated activated carbon before being emitted, through a stack, into the atmosphere. This form is for the Mercury Retort, Carbon Filter CA3

12. Waste Gas Stream	Material: Mercury Check box if material is a hazardous air pollutant (HAP) ☒ ☐ ☐ ☐	**Flow rate scfm (standard conditions are 68 degrees F and 14.7 psia)** Minimum TBD Average Maximum Average concentration ppmv
	Are reactive organics present? (e.g., ketone, aldehydes) ☐ Yes ☒ No	Relative humidity: % Cycle time for adsorption: hour(s) Lower explosive limit of mixture: ppmv or % volume
	Is the adsorbent material regenerated on-site? ☐ Yes ☒ No Regeneration rate: lb/min	On-site regeneration by: ☐ Steam ☐ Air ☐ Inert gas ☐ Process gas Other: Cycle time for regeneration: hour(s)
13. Regeneration	N/A	
14. Instrumentation Data	Exhaust temperature will be measured at the carbon adsorber inlet per 63.11647(g).	
15. Operating Schedule	Normal: 24 hours/day 7 days/week 52 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year	

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Carbon Adsorber - **Form CA**
Revision 2
08/28/08

Please see instructions on page 3 before filling out the form.

IDENTIFICATION

1. Company Name:	Midas Gold Idaho, Inc.	2. Facility Name:	Stibnite Gold Project	3. Facility ID No.:	
4. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.				

CARBON ADSORBER INFORMATION

Equipment Description

5. Manufacturer:	TBD	6. Model Number:	TBD	7. Make:	TBD

8. Type	☐ Fixed regenerative beds ☐ Disposable/rechargeable canisters ☐ Traveling bed adsorbers/rotary concentrators ☐ Fluidized adsorbers	Number of beds: TBD Capacity of each bed: TBD pounds of adsorbent
9. Adsorbent Material	☒ Granulated activated carbon ☐ Zeolite, molecular sieve ☐ Synthetic adsorbent Trade name: ☐ Other:	Adsorbent capacity: TBD (pound of vapor/pound of carbon)
10. Dimensions	Adsorbent vessel diameter: TBD feet	Depth of carbon in bed: TBD feet

Waste Gas Stream Characteristics

11. Brief Description of Process	After retorting, the gold concentrate is transferred to the electric induction melting furnace. Only retorted concentrate may be melted in the furnace. The exhaust passes through a carbon adsorption column, where any remaining vapor mercury is adsorbed onto activated carbon before being emitted, through a stack, into the atmosphere. This form is for the Induction Melting Furnace, Carbon Filter CA4.

12. Waste Gas Stream	Material: Mercury Check box if material is a hazardous air pollutant (HAP) ☒ ☐ ☐ ☐	**Flow rate scfm (standard conditions are 68 degrees F and 14.7 psia)** Minimum TBD Average Maximum Average concentration ppmv
	Are reactive organics present? (e.g., ketone, aldehydes) ☐ Yes ☒ No	Relative humidity: % Cycle time for adsorption: hour(s) Lower explosive limit of mixture: ppmv or % volume
	Is the adsorbent material regenerated on-site? ☐ Yes ☒ No Regeneration rate: lb/min	On-site regeneration by: ☐ Steam ☐ Air ☐ Inert gas ☐ Process gas Other: Cycle time for regeneration: hour(s)
13. Regeneration	N/A	
14. Instrumentation Data	Exhaust temperature will be measured at the carbon adsorber inlet per 63.11647(g).	
15. Operating Schedule	Normal: 24 hours/day 7 days/week 52 weeks/year Maximum: 24 hours/day 7 days/week 52 weeks/year	

1.8 Form BCE – Baghouses Control Equipment (14 forms)

Table 6 provides a list of all controls provided on a baghouse control form. This list includes both the baghouse controls and the bin vent filters located on silos for loading emissions. The noted references, along with the particulate matter emission concentrations can be found in the detailed emission inventory in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 6. Sources Controlled by a Baghouse

Form #	Source ID	Description	Control
1	Sb2	Sb Bagging	Baghouse (BH1)
2	MF	Induction Melting Furnace	Baghouse (BH2)
3	LSBM	Limestone Ball Mill	Baghouse (BH3)
4	LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	Baghouse (BH4)
5	LCR	Lime Mill Crushing and associated transfers In and Out	Baghouse (BH5)
6	LS1L	Mill Lime Silo #1 Loading	Bin Vent Filter
7	MillS2L	Mill Lime Silo #2 Loading	Bin Vent Filter
8	ACS1L	AC Lime Silo #1 Loading	Bin Vent Filter
9	ACS2L	AC Lime Silo #2 Loading	Bin Vent Filter
10	ACS3L	AC Lime Silo #3 Loading	Bin Vent Filter
11	ACS4L	AC Lime Silo #4 Loading	Bin Vent Filter
12	CS1L	Cement/Shotcrete Silo #1 Loading	Bin Vent Filter
13	CS2L	Cement/Shotcrete Silo #2 Loading	Bin Vent Filter
14	LSL	Pebble Lime Silo Loading via Bucket Elevator	Bin Vent Filter

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Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: Sb2 - Sb Bagging - Baghouse (BH1)

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: BH1

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.017 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	100 % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	800 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: MF - Induction Melting Furnace - Baghouse (BH2)

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: BH2

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.095 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	100 % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	3500 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: LSBM - Limestone Ball Mill - Baghouse (BH3)

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: BH3

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.017 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.014 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	13000 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: LK - Parallel Flow Regenerative (PFR) Shaft Lime Kiln - Baghouse (BH4)

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: BH4

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.013 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	100 % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	8000 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: LCR - Lime Mill Crushing and associated transfers In and Out - Baghouse (BH5)

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: TBD	5. Baghouse Model: TBD	6. Baghouse Equipment ID: BH5

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.017 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.014 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	2000 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: LS1L - Mill Lime Silo #1 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	700 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: MillS2L - Mill Lime Silo #2 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	700 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: ACS1L - AC Lime Silo #1 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	1400 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: ACS2L - AC Lime Silo #2 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	1400 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
Revision 6
2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: ACS3L - AC Lime Silo #3 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	1400 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: ACS4L - AC Lime Silo #4 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	1400 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: CS1L - Cement/Shotcrete Silo #1 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	930 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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2/18/10

Complete this form for each baghouse. Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: CS2L - Cement/Shotcrete Silo #2 Loading - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	_____ % 0.003 gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	930 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

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Baghouse Control Equipment **Form BCE**
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2/18/10

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IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project

3. Brief Project Description: Conventional open-pit mining and onsite ore preparation and gold extraction processes.
This form is for: Source ID: LSL - Pebble Lime Silo Loading via Bucket Elevator - Bin Vent Filter

BAGHOUSE INFORMATION

4. Baghouse Manufacturer: NA	5. Baghouse Model: NA	6. Baghouse Equipment ID: NA

7 (a). Baghouse particulate matter emission concentration. **Note: Provide information in 7(a)-(c) or answer question #8 below.**	0.01 gr/dscf	*Manufacturers typically provide guarantees in grains per dry standard cubic foot (gr/dscf). Provide a copy of the guarantee, or other documentation, with the application along with a description of the types of bags that must be used to achieve the emission concentration.* ***Emission concentrations less than 0.01 gr/dscf will receive additional scrutiny by DEQ and a source test of the baghouse may be required.*** *If a guarantee is not provided then you must document how you obtained the emission concentration. Without documentation the application is not complete.*
7 (b). Percentage PM_{10} Or Provide PM_{10} Emission Concentration	100 % _____ gr/dscf	*What percentage of the PM concentration listed in question #7(a) is PM_{10}. You must provide documentation as to how the percentage was determined (i.e per the baghouse manufacturer). Without documentation the application is not complete.*
7 (c). Baghouse flow rate	70 dscfm	*Provide the baghouse flow rate in dry standard cubic feet per minute. Actual cubic feet per minute may be given in lieu of dscfm* ***if it is documented*** *that moisture content is insignificant. You must provide documentation as to how this flow rate was determined (i.e. per the exhaust fan manufacturer, combustion evaluation, etc.). Without documentation the application is not complete.*
8. Baghouse particulate matter control efficiency. **Note: Not needed if section #7 is completed.**	_____ % PM control _____ % PM_{10} control	*Applicant's providing the control efficiency of the baghouse must provide control efficiency for both PM and PM_{10}. Provide a copy of the control efficiency documentation with the application. Documentation must include a description of the types of bags that must be used to achieve the control efficiency. Without documentation the application is not complete.*
9. Is the baghouse equipped with a bag leak detector?	☐ Yes ☒ No	*If a bag leak detector is installed provide documentation on the leak detector, including; how the leak detector functions and what level of the output signal indicates that a bag is leaking. Without documentation the application is not complete.*

1.9 Form SCE – Scrubbers Control Equipment (3 forms)

Table 7 provides a list of all emission units controlled by a wet scrubber. The actual scrubber types are to be determined along with operational parameters. Emissions data for each unit can be found in the detailed emission inventory found in the "Stibnite Gold Project Air Quality Modeling Report" found in Attachment A of this application. Supporting documentation can be found on the digital media provided with this application.

Table 7. Sources Controlled by a Wet Scrubber

Form #	Source ID	Description	Control
1	AC	Autoclave	Wet Scrubber (WS1)
2	CKD	Carbon Regeneration Kiln (Drum)	Wet Scrubber (WS2)
3	LSU	Pebble Lime Silo discharge to Lime Slaker	Wet Scrubber (WS3)

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Scrubber Control Equipment - **Form SCE**
Revision 6
6/11/15

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project
3. Emissions Unit ID (unit being controlled by the scrubber)	4. Exhaust Stack ID of the Scrubber:
AC - Autoclave	WS1

5. Project Description	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: AC - Autoclave - Wet Scrubber (WS1)

EQUIPMENT DESCRIPTION

Equipment	6. Manufacturer: TBD		7. Model.: TBD	
Scrubber Type	8. ☒ Wet Scrubber (indicate type)	☐ Venturi	☐ Packed Bed	☐ Condensation Scrubbing
		☐ Tray/Plate	☐ Orifice	☐ Spray Chamber
	9. ☐ Dry Scrubber			
	10. ☐ Other (please provide details):			
Operation	**Packed Bed (if applicable)**		11. Type of Packing Material: TBD	
	Venturi (if applicable)		12. Pressure Drop Across Throat: TBD in w.g.	
	Spray Chamber (if applicable)		13. Pressure in Spray Nozzles: TBD in psi	
	14. Operating Pressure Range (all scrubber types): TBD to TBD in w.g.			
	15. Other Operating Parameters (if neccessary): TBD			
Scrubbing Media (as required)	16. Recirculation Rate: TBD gpm		17. Flow Meter? ☐ Yes ☐ No	
	18. pH of Scrubbing Media (range): _____ to _____		19. pH Meter? ☐ Yes ☐ No	
	20. ORP of Scrubbing Media (range): _____ to _____ mv		21. ORP Meter? ☐ Yes ☐ No	
Pollutant (being removed)	22. ☒ Particulates (PM_{10}/$PM_{2.5}$)		23. ☐ VOC	
	24. ☐ SO_2		25. ☐ H_2S	
	26. ☐ Odor		27. ☐ Inorganic Fumes	
	28. Other:			

Emissions Data	Pollutant	Control Efficiency %	Source of Data
	29. Particulates (PM_{10})	Control in EF	37. ☐ Manufacturer's Specifications
	30. Particulates ($PM_{2.5}$)	Control in EF	38. ☐ Emissions Source Test (provide source test report)
	31. VOC		39. ☐ AP-42 Section _____
	32. SO_2		40. ☒ Other
	33. H_2S		*Note: Supporting documentation must be provided.*
	34. Odor		*"Supporting documentation must be provided" in this section means the following information shall be available for DEQ staff review:*
	35. Inorganic Fume		• *Control equipment manufacturer guarantees (if applicable),*
	36. Other		• *Source test reports (if applicable)*
			• *All sources of emissions factors used to perform emissions calculations (i.e. continuous emissions monitoring system (CEMS) data, source testing, and/or US EPA's AP-42), and*
			• *All assumptions used to perform emissions calculations.*

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Scrubber Control Equipment - **Form SCE**
Revision 6
6/11/15

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project
3. Emissions Unit ID (unit being controlled by the scrubber)	4. Exhaust Stack ID of the Scrubber:
CKD - Carbon Regeneration Kiln (Drum)	WS2

5. Project Description	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: CDK - Carbon Regeneration Kiln (Drum) - Wet Scrubber (WS2)

EQUIPMENT DESCRIPTION

Equipment	6. Manufacturer: TBD	7. Model.: TBD		
Scrubber Type	8. ☒ Wet Scrubber (indicate type)	☐ Venturi	☐ Packed Bed	☐ Condensation Scrubbing
		☐ Tray/Plate	☐ Orifice	☐ Spray Chamber
	9. ☐ Dry Scrubber			
	10. ☐ Other (please provide details):			
Operation	**Packed Bed (if applicable)**	11. Type of Packing Material: TBD		
	Venturi (if applicable)	12. Pressure Drop Across Throat: TBD in w.g.		
	Spray Chamber (if applicable)	13. Pressure in Spray Nozzles: TBD in psi		
	14. Operating Pressure Range (all scrubber types): TBD to TBD in w.g.			
	15. Other Operating Parameters (if neccessary): TBD			
Scrubbing Media (as required)	16. Recirculation Rate: TBD gpm	17. Flow Meter? ☐ Yes ☐ No		
	18. pH of Scrubbing Media (range): _____ to _____	19. pH Meter? ☐ Yes ☐ No		
	20. ORP of Scrubbing Media (range): _____ to _____ mv	21. ORP Meter? ☐ Yes ☐ No		
Pollutant (being removed)	22. ☒ Particulates (PM_{10}/$PM_{2.5}$)	23. ☐ VOC		
	24. ☐ SO_2	25. ☐ H_2S		
	26. ☐ Odor	27. ☐ Inorganic Fumes		
	28. Other:			

	Pollutant	Control Efficiency %	Source of Data
Emissions Data	29. Particulates (PM_{10})	Control in EF	37. ☐ Manufacturer's Specifications 38. ☐ Emissions Source Test (provide source test report) 39. ☐ AP-42 Section _____ 40. ☒ Other *Note: Supporting documentation must be provided.* *"Supporting documentation must be provided" in this section means the following information shall be available for DEQ staff review:* • *Control equipment manufacturer guarantees (if applicable),* • *Source test reports (if applicable)* • *All sources of emissions factors used to perform emissions calculations (i.e. continuous emissions monitoring system (CEMS) data, source testing, and/or US EPA's AP-42), and* • *All assumptions used to perform emissions calculations.*
	30. Particulates ($PM_{2.5}$)	Control in EF	
	31. VOC		
	32. SO_2		
	33. H_2S		
	34. Odor		
	35. Inorganic Fume		
	36. Other		

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Scrubber Control Equipment - **Form SCE**
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6/11/15

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

1. Company Name	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project
3. Emissions Unit ID (unit being controlled by the scrubber)	4. Exhaust Stack ID of the Scrubber:
LSU - Pebble Lime Silo discharge to Lime Slaker	WS3

5. Project Description	Conventional open-pit mining and onsite ore preparation and gold extraction processes. This form is for: Source ID: LSU - Pebble Lime Silo discharge to Lime Slaker - Wet Scrubber (WS3)

EQUIPMENT DESCRIPTION

Equipment	6. Manufacturer: TBD	7. Model.: TBD		
Scrubber Type	8. ☒ Wet Scrubber (indicate type)	☐ Venturi	☐ Packed Bed	☐ Condensation Scrubbing
		☐ Tray/Plate	☐ Orifice	☐ Spray Chamber
	9. ☐ Dry Scrubber			
	10. ☐ Other (please provide details):			
Operation	**Packed Bed (if applicable)**	11. Type of Packing Material: TBD		
	Venturi (if applicable)	12. Pressure Drop Across Throat: TBD in w.g.		
	Spray Chamber (if applicable)	13. Pressure in Spray Nozzles: TBD in psi		
	14. Operating Pressure Range (all scrubber types): TBD to TBD in w.g.			
	15. Other Operating Parameters (if neccessary): TBD			
Scrubbing Media (as required)	16. Recirculation Rate: TBD gpm	17. Flow Meter? ☐ Yes ☐ No		
	18. pH of Scrubbing Media (range): _____ to _____	19. pH Meter? ☐ Yes ☐ No		
	20. ORP of Scrubbing Media (range): _____ to _____ mv	21. ORP Meter? ☐ Yes ☐ No		
Pollutant (being removed)	22. ☒ Particulates (PM_{10}/$PM_{2.5}$)	23. ☐ VOC		
	24. ☐ SO_2	25. ☐ H_2S		
	26. ☐ Odor	27. ☐ Inorganic Fumes		
	28. Other:			

Emissions Data	Pollutant	Control Efficiency %	Source of Data
	29. Particulates (PM_{10})	Controlled EF	37. ☐ Manufacturer's Specifications
	30. Particulates ($PM_{2.5}$)	Controlled EF	38. ☐ Emissions Source Test (provide source test report)
	31. VOC		39. ☒ AP-42 Section Table 11.17-4
	32. SO_2		40. ☐ Other
	33. H_2S		*Note: Supporting documentation must be provided.*
	34. Odor		*"Supporting documentation must be provided" in this section means the following information shall be available for DEQ staff review:*
	35. Inorganic Fume		• *Control equipment manufacturer guarantees (if applicable),*
	36. Other		• *Source test reports (if applicable)*
			• *All sources of emissions factors used to perform emissions calculations (i.e. continuous emissions monitoring system (CEMS) data, source testing, and/or US EPA's AP-42), and*
			• *All assumptions used to perform emissions calculations.*

1.10 Forms EI – Emissions Inventory

The IDEQ facility wide potential to emit emission inventory tables for new source review (NSR) regulated pollutants (Table 8), hazardous air pollutants (HAP) (Table 9), and toxic air pollutants (TAP) (Table 10 and Table 11) are provided here. In addition, the ambient impact assessment emission inventory table is provided (Table 12).

The detailed emission inventory and full ambient impact assessment can be found in the "Stibnite Gold Project Air Quality Modeling Report," Attachment A of this application. Supporting documentation for the emission inventory can be found on the digital media provided with this application.

Facility Wide Potential to Emit Emission Inventory

Table 8. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions	PM	PM10	PM2.5	CO	Pb	NO2	VOC	SO2	CO2e
Unit	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Process & Ancillary Point Sources									
LS1L	2.2E-3	7.4E-4	1.1E-4		--				--
MillS2L	2.2E-3	7.4E-4	1.1E-4		--				--
Sb1	0.09	0.09	0.09	0.98	--	1.69	0.10	0.21	1,658
Sb2	0.52	0.52	0.52		--				--
AC	22.23	22.23	22.23		--			2.86	47,316
ACB	2.0E-3	2.0E-3	2.0E-3	0.02	--	0.04	2.2E-3	4.4E-3	35.49
ACS1L	8.7E-3	3.0E-3	4.4E-4		--				--
ACS2L	8.7E-3	3.0E-3	4.4E-4		--				--
ACS3L	8.7E-3	3.0E-3	4.4E-4		--				--
ACS4L	4.3E-3	1.5E-3	2.2E-4		--				--
CKD	1.84	1.84	1.84	0.53	--	0.05	0.48		--
CKB	0.08	0.08	0.08	0.81	--	1.40	0.09	0.17	1,375
EW	0.31	0.31	0.31		--				--
MR	6.2E-3	6.2E-3	6.2E-3		--				--
MF	0.89	0.89	0.89		--				--
EDG1	0.02	0.02	0.02	0.39	--	0.71	0.14	7.2E-4	76.79
EDG2	0.02	0.02	0.02	0.39	--	0.71	0.14	7.2E-4	76.79
EDG3	0.02	0.02	0.02	0.39	--	0.71	0.14	7.2E-4	76.79
EDFP	4.4E-3	4.4E-3	4.4E-3	0.08	--	0.09	0.09	1.4E-4	15.36
PV	3.4E-3	3.4E-3	3.4E-3	0.04	--	0.06	3.8E-3	7.6E-3	60.95
HS	0.17	0.17	0.17	1.80	--	3.11	0.19	0.38	3,048
H1M	0.13	0.13	0.13	1.44	--	2.49	0.15	0.30	2,438
H2M	0.13	0.13	0.13	1.44	--	2.49	0.15	0.30	2,438
HM	0.13	0.13	0.13	1.44	--	2.49	0.15	0.30	2,438
HAC	8.4E-3	8.4E-3	8.4E-3	0.09	--	0.16	9.6E-3	0.02	152
HR	8.4E-3	8.4E-3	8.4E-3	0.09	--	0.16	9.6E-3	0.02	152
HA	8.4E-3	8.4E-3	8.4E-3	0.09	--	0.16	9.6E-3	0.02	152
HMO	0.02	0.02	0.02	0.18	--	0.31	0.02	0.04	305
HTS	0.07	0.07	0.07	0.72	--	1.24	0.08	0.15	1,219
HW	0.10	0.10	0.10	1.08	--	1.87	0.11	0.23	1,829
PSL	0.07	0.03	3.9E-3		--				--
CS1L	0.03	0.01	1.5E-3		2.2E-5				--
CS2L	0.03	0.01	1.5E-3		2.2E-5				--
TG1					--		0.96		--
TG2					--		0.96		--
TD3					--		7.3E-3		--
TD4					--		7.3E-3		--
TD5					--		7.3E-3		--
TD6					--		7.3E-3		--
TD7					--		7.3E-3		--
TD8					--		7.3E-3		--
TD9					--		7.3E-3		--
TD10					--		7.3E-3		--
LS6	0.48	0.17	0.03		--				--
LSBM	6.42	5.39	1.92		--				--
LS9	0.12	0.05	7.0E-3		--				--
LK	3.40	3.40	3.40	11.78	--	6.29		0.03	30,311
LKC	0.63	0.63	0.63	6.72	--	11.65	0.72	1.42	11,407
LCR	1.06	0.89	0.32		--				--
LSL	0.02	0.02	0.02		--				--

Facility Wide Potential to Emit Emission Inventory

Table 8. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions	PM	PM10	PM2.5	CO	Pb	NO2	VOC	SO2	CO2e
Unit	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Process & Ancillary Fugitive Sources									
OC1	0.64	0.21	0.06		5.1E-6				--
OC2	0.64	0.21	0.06		5.1E-6				--
OC3	0.64	0.21	0.06		5.1E-6				--
OC4	0.64	0.21	0.06		5.1E-6				--
OC5	0.64	0.21	0.06		5.1E-6				--
OC6	0.64	0.21	0.06		5.1E-6				--
OC7	5.48	2.46	0.46		4.4E-5				--
OC8	0.64	0.21	0.06		5.1E-6				--
OC9	3.02	1.11	0.17		2.4E-5				--
OC10	3.02	1.11	0.17		2.4E-5				--
OC11	3.02	1.11	0.17		2.4E-5				--
OC12	6.04	2.72	0.50		4.8E-5				--
OC13	0.71	0.23	0.07		5.6E-6				--
LS1U	0.01	6.1E-3	9.2E-4		--				--
MillS2U	0.01	6.1E-3	9.2E-4		--				--
ACS1U	0.04	0.02	3.5E-3		--				--
ACS2U	0.04	0.02	3.5E-3		--				--
ACS3U	0.04	0.02	3.5E-3		--				--
ACS42U	0.02	0.01	1.8E-3		--				--
PSU	0.07	0.03	3.9E-3		--				--
CS1U	0.14	0.08	0.01		--				--
CS2U	0.14	0.08	0.01		--				--
CAL	1.73	0.83	0.13		--				--
CAU	1.73	0.83	0.13		--				--
CM	0.55	0.17	0.02		1.1E-5				--
PCSP1	2.74	1.02	0.13		--				--
PCSP2	2.74	1.02	0.13		--				--
LS1	0.48	0.17	0.03		--				--
LS2	0.86	0.38	0.06		--				--
LS3	3.97	1.38	0.21		--				--
LS4	0.86	0.38	0.06		--				--
LS5	3.97	1.38	0.21		--				--
LS7	0.48	0.17	0.03		--				--
LS8	0.48	0.17	0.03		--				--
LS10	0.12	0.05	7.0E-3		--				--
LS11	1.03	0.36	0.05		--				--
LS12	0.12	0.05	7.0E-3		--				--
LSU	2.3E-3	2.3E-3	2.3E-3		--				--
Mining Fugitive Sources Model Scenario: W3									
YPP	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
HFP	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
WEP	345	162	14.53	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
BT	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
TSF	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
UGEXP	1.5E-3	7.3E-4	1.1E-4	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
YPPBL	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
HFPBL	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
WEPBL	117	61.02	3.52	636		17.08	0.0E+0	0.03	
BTBL	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
STKP	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
FDRSF	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
HFDRSF	52.91	10.42	5.52	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
YPDRSF	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
WEDRSF	0.0E+0	0.0E+0	0.0E+0	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
HR	3,047	751	75.12	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
ACCRD	6.95	1.72	0.17	0.0E+0		0.0E+0	0.0E+0	0.0E+0	
Totals	**3,656**	**1,042**	**135**	**666**	**2.6E-4**	**54.93**	**4.78**	**6.51**	**106,580**

Facility Wide HAP Potential to Emit

Table 9. HAP POTENTIAL TO EMIT EMISSIONS SUMMARY

CAS No.	HAP	Process T/yr	Mining T/yr	Total T/yr
106-99-0	1,3-Butadiene	3.67E-6	--	3.67E-6
91-57-6	2-Methylnaphthalene	4.85E-6	--	4.85E-6
56-49-5	3-Methylchloranthrene	3.64E-7	--	3.64E-7
57-97-6	7,12-Dimethylbenz(a)anthrace	3.24E-6	--	3.24E-6
83-32-9	Acenaphthene	7.09E-6	--	7.09E-6
208-96-8	Acenaphthylene	1.38E-5	--	1.38E-5
75-07-0	Acetaldehyde	1.07E-4	--	1.07E-4
107-02-8	Acrolein	1.98E-5	--	1.98E-5
120-12-7	Anthracene	2.39E-6	--	2.39E-6
7440-36-0	Antimony	3.00E-1	--	3.00E-1
7440-38-2	Arsenic	1.76E-2	--	1.76E-2
56-55-3	Benz(a)anthracene	1.40E-6	--	1.40E-6
71-43-2	Benzene	1.60E-3	--	1.60E-3
50-32-8	Benzo(a)pyrene	6.22E-7	--	6.22E-7
205-99-2	Benzo(b)fluoranthene	1.94E-6	--	1.94E-6
191-24-2	Benzo(g,h,i)perylene	1.07E-6	--	1.07E-6
207-08-9	Benzo(k)fluoranthene	6.86E-7	--	6.86E-7
7440-41-7	Beryllium	8.59E-5	--	8.59E-5
7440-43-9	Cadmium	2.50E-4	--	2.50E-4
75-15-0	Carbon disulfide	6.33E-2	--	6.33E-2
7440-47-3	Chromium	5.73E-4	--	5.73E-4
218-01-9	Chrysene	2.55E-6	--	2.55E-6
7440-48-4	Cobalt	1.20E-4	--	1.20E-4
592-01-8	Cyanide	9.73E-1	--	9.73E-1
53-70-3	Dibenz(a,h)anthracene	7.85E-7	--	7.85E-7
106-46-7	Dichlorobenzene	2.43E-4	--	2.43E-4
206-44-0	Fluoranthene	7.00E-6	--	7.00E-6
86-73-7	Fluorene	2.13E-5	--	2.13E-5
50-00-0	Formaldehyde	1.54E-2	--	1.54E-2
110-54-3	Hexane	3.64E-1	--	3.64E-1
193-39-5	Indeno(1,2,3-cd)pyrene	9.82E-7	--	9.82E-7
7439-92-1	Lead	2.62E-4	--	2.62E-4
7439-96-5	Manganese	2.17E-2	--	2.17E-2
7439-97-6	Mercury	1.24E-2	3.54E-3	1.60E-2
91-20-3	Naphthalene	3.14E-4	--	3.14E-4
7440-02-0	Nickel	1.63E-3	--	1.63E-3
85-01-8	Phenanthrene	6.36E-5	--	6.36E-5
7723-14-0	Phosphorus	1.81E-2	--	1.81E-2
129-00-0	Pyrene	6.68E-6	--	6.68E-6
7782-49-2	Selenium	4.85E-6	--	4.85E-6
108-88-3	Toluene	1.12E-3	--	1.12E-3
1330-20-7	Xylene	2.99E-4	--	2.99E-4
Total HAP		1.79	3.54E-3	1.80

TAP Emissions Inventory

Table 10. NON-CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

CAS No.	TAP	Total lb/hr	Non-Carcinogenic EL lb/hr	Exceeds Screening Level Y/N
7440-36-0	Antimony	6.86E-2	3.30E-2	Yes
75-15-0	Carbon disulfide	1.45E-2	2.00E+0	No
7440-47-3	Chromium	2.14E-4	3.30E-2	No
7440-48-4	Cobalt	2.91E-5	3.30E-3	No
592-01-8	Cyanide	2.22E-1	3.33E-1	No
106-46-7	Dichlorobenzene	7.93E-5	3.00E+1	No
110-54-3	Hexane	1.19E-1	1.20E+1	No
7439-96-5	Manganese	3.53E-2	6.70E-2	No
91-20-3	Naphthalene	4.03E-5	3.33E+0	No
7723-14-0	Phosphorus	6.12E-3	7.00E-3	No
7782-49-2	Selenium	1.59E-6	1.30E-2	No
108-88-3	Toluene	2.25E-4	2.50E+1	No
7440-39-3	Barium	5.00E-3	3.30E-2	No
7440-50-8	Copper	8.55E-5	6.70E-2	No
7783-06-4	Hydrogen Sulfide	9.00E-1	9.33E-1	No
7439-98-7	Molybdenum	7.85E-5	3.33E-1	No
109-66-0	Pentane	1.72E-1	1.18E+2	No
7440-22-4	Silver	2.94E-6	7.00E-3	No
7664-93-9	Sulfuric Acid	2.03E+0	6.70E-2	Yes
7440-28-0	Thallium	5.88E-5	7.00E-3	No
7440-61-1	Uranium	5.88E-5	1.30E-2	No
7440-62-2	Vanadium	1.52E-4	3.00E-3	No
7440-66-6	Zinc	1.92E-3	6.67E-1	No

Diesel engine HAP are regulated by 40CFR63, Subpart ZZZZ and therefore exempt from TAP analysis per IDAPA 58.01.01 Section 210.20.

TAP Emissions Inventory

Table 11. CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

CAS No.	TAP	Total lb/hr	Carcinogenic EL lb/hr	Exceeds Screening Level Y/N
56-49-5	3-Methylchloranthrene	1.19E-7	2.50E-6	No
7440-38-2	Arsenic	4.37E-3	1.50E-6	Yes
71-43-2	Benzene	1.39E-4	8.00E-4	No
50-32-8	Benzo(a)pyrene	7.93E-8	2.00E-6	No
7440-41-7	Beryllium	2.25E-5	2.80E-5	No
7440-43-9	Cadmium	1.13E-4	3.70E-6	Yes
50-00-0	Formaldehyde	4.95E-3	5.10E-4	Yes
7440-02-0	Nickel	3.03E-3	2.70E-5	Yes

Diesel engine HAP are regulated by 40CFR63, Subpart ZZZZ and therefore exempt from TAP analysis per IDAPA 58.01.01 Section 210.20.

Ambient Impact Assessment Emission Inventory
Table 12. PROPOSED EMISSIONS

Emissions Unit	Stack or Emissions Point ID	PM_{10}	$PM_{2.5}$		SO_2		NO_x		CO	
		gps 24-hr Avg.	gps 24-hr Avg.	gps Annual Avg.	gps Max.	gps 3-hr Avg.	gps Max.	gps Annual Avg.	gps Max.	gps 8-hr Avg.
Process & Ancillary Point Sources										
LS1L	LS1L	4.5E-4	6.6E-5	3.1E-6						
MillS2L	MillS2L	4.5E-4	6.6E-5	3.1E-6						
Sb1	Sb1	2.6E-3	2.6E-3	2.6E-3	6.0E-3	6.0E-3	4.9E-2	4.9E-2	2.8E-2	2.8E-2
Sb2	Sb2	1.5E-2	1.5E-2	1.5E-2						
AC	AC	6.4E-1	6.4E-1	6.4E-1	8.2E-2	8.2E-2				
ACB	ACB	6.8E-4	6.8E-4	5.6E-5	3.7E-2	3.7E-2	3.0E-1	1.0E-3	1.8E-1	1.8E-1
ACS1L	ACS1L	1.8E-3	2.6E-4	1.3E-5						
ACS2L	ACS2L	1.8E-3	2.6E-4	1.3E-5						
ACS3L	ACS3L	1.8E-3	2.6E-4	1.3E-5						
ACS4L	ACS4L	8.9E-4	1.3E-4	6.3E-6						
CKD	CKD	5.3E-2	5.3E-2	5.3E-2			1.5E-3	1.5E-3	1.5E-2	1.5E-2
CKB	CKB	2.2E-3	2.2E-3	2.2E-3	4.9E-3	4.9E-3	4.0E-2	4.0E-2	2.3E-2	2.3E-2
EW	EW	8.8E-3	8.8E-3	8.8E-3						
MR	MR	1.3E-3	1.3E-3	1.8E-4						
MF	MF	1.8E-1	1.8E-1	2.5E-2						
EDG1	EDG1	2.3E-3	2.3E-3	6.3E-4	1.8E-3	1.8E-3	2.0E-2	2.0E-2	9.7E-1	9.7E-1
EDG2	EDG2	2.3E-3	2.3E-3	6.3E-4	1.8E-3	1.8E-3	2.0E-2	2.0E-2	9.7E-1	9.7E-1
EDG3	EDG3	2.3E-3	2.3E-3	6.3E-4	1.8E-3	1.8E-3	2.0E-2	2.0E-2	9.7E-1	9.7E-1
EDFP	EDFP	4.6E-4	4.6E-4	1.3E-4	3.6E-4	3.6E-4	2.5E-3	2.5E-3	1.9E-1	1.9E-1
PV	PV	9.6E-5	9.6E-5	9.6E-5	2.2E-4	2.2E-4	1.8E-3	1.8E-3	1.0E-3	1.0E-3
HS	HS	4.8E-3	4.8E-3	4.8E-3	1.1E-2	1.1E-2	9.0E-2	9.0E-2	5.2E-2	5.2E-2
H1M	H1M	3.9E-3	3.9E-3	3.9E-3	8.8E-3	8.8E-3	7.2E-2	7.2E-2	4.1E-2	4.1E-2
H2M	H2M	3.9E-3	3.9E-3	3.9E-3	8.8E-3	8.8E-3	7.2E-2	7.2E-2	4.1E-2	4.1E-2
HM	HM	3.9E-3	3.9E-3	3.9E-3	8.8E-3	8.8E-3	7.2E-2	7.2E-2	4.1E-2	4.1E-2
HAC	HAC	2.4E-4	2.4E-4	2.4E-4	5.5E-4	5.5E-4	4.5E-3	4.5E-3	2.6E-3	2.6E-3
HR	HR	2.4E-4	2.4E-4	2.4E-4	5.5E-4	5.5E-4	4.5E-3	4.5E-3	2.6E-3	2.6E-3
HA	HA	2.4E-4	2.4E-4	2.4E-4	5.5E-4	5.5E-4	4.5E-3	4.5E-3	2.6E-3	2.6E-3
HMO	HMO	4.8E-4	4.8E-4	4.8E-4	1.1E-3	1.1E-3	9.0E-3	9.0E-3	5.2E-3	5.2E-3
HTS	HTS	1.9E-3	1.9E-3	1.9E-3	4.4E-3	4.4E-3	3.6E-2	3.6E-2	2.1E-2	2.1E-2
HW	HW	2.9E-3	2.9E-3	2.9E-3	6.6E-3	6.6E-3	5.4E-2	5.4E-2	3.1E-2	3.1E-2
PSL	PSL	7.3E-3	1.1E-3	1.1E-4						
CS1L	CS1L	1.4E-4	2.1E-5	4.3E-5						
CS2L	CS2L	1.4E-4	2.1E-5	4.3E-5						
TG1	TG1									
TG2	TG2									
TD3	TD3									
TD4	TD4									
TD5	TD5									
TD6	TD6									
TD7	TD7									
TD8	TD8									
TD9	TD9									
TD10	TD10									
LS6	LS6	6.5E-3	1.0E-3	7.8E-4						
LSBM	LSBM	2.0E-1	7.2E-2	5.5E-2						
LS9	LS9	1.5E-3	2.4E-4	2.0E-4						
LK	LK	1.2E-1	1.2E-1	9.8E-2	1.1E-3	1.1E-3	2.1E-1	1.8E-1	4.0E-1	4.0E-1
LKC	LKC	2.1E-2	2.1E-2	1.8E-2	4.8E-2	4.8E-2	3.9E-1	3.4E-1	2.3E-1	2.3E-1
LCR	LCR	3.0E-2	1.1E-2	9.1E-3						
LSL	LSL	7.8E-4	7.8E-4	6.6E-4						

Midas Gold - Stibnite Gold Project
IDEQ - Emission Inventory

Ambient Impact Assessment Emission Inventory
Table 12. PROPOSED EMISSIONS

Emissions Unit	Stack or Emissions Point ID	PM_{10}	$PM_{2.5}$		SO_2		NO_x		CO	
		gps 24-hr Avg.	gps 24-hr Avg.	gps Annual Avg.	gps Max.	gps 3-hr Avg.	gps Max.	gps Annual Avg.	gps Max.	gps 8-hr Avg.
Process & Ancillary Fugitive Sources										
OC1	OC1	6.0E-3	1.7E-3	1.7E-3						
OC2	OC2	6.0E-3	1.7E-3	1.7E-3						
OC3	OC3	6.0E-3	1.7E-3	1.7E-3						
OC4	OC4	6.0E-3	1.7E-3	1.7E-3						
OC5	OC5	6.0E-3	1.7E-3	1.7E-3						
OC6	OC6	6.0E-3	1.7E-3	1.7E-3						
OC7	OC7	7.1E-2	1.3E-2	1.3E-2						
OC8	OC8	6.0E-3	1.7E-3	1.7E-3						
OC9	OC9	3.2E-2	4.9E-3	4.9E-3						
OC10	OC10	3.2E-2	4.9E-3	4.9E-3						
OC11	OC11	3.2E-2	4.9E-3	4.9E-3						
OC12	OC12	7.8E-2	1.4E-2	1.4E-2						
OC13	OC13	6.7E-3	1.9E-3	1.9E-3						
LS1U	LS1U	3.7E-3	5.5E-4	2.6E-5						
MillS2U	MillS2U	3.7E-3	5.5E-4	2.6E-5						
ACS1U	ACS1U	7.1E-3	1.0E-3	1.0E-4						
ACS2U	ACS2U	7.1E-3	1.0E-3	1.0E-4						
ACS3U	ACS3U	7.1E-3	1.0E-3	1.0E-4						
ACS42U	ACS42U	7.1E-3	1.0E-3	5.0E-5						
PSU	PSU	7.3E-3	1.1E-3	1.1E-4						
CS1U	CS1U	1.2E-3	1.7E-4	3.5E-4						
CS2U	CS2U	1.2E-3	1.7E-4	3.5E-4						
CAL	CAL	4.2E-2	6.3E-3	3.6E-3						
CAU	CAU	4.2E-2	6.3E-3	3.6E-3						
CM	CM	2.3E-3	3.4E-4	6.9E-4						
PCSP1	PCSP1	2.9E-2	3.8E-3	3.8E-3						
PCSP2	PCSP2	2.9E-2	3.8E-3	3.8E-3						
LS1	LS1	6.5E-3	1.0E-3	7.8E-4						
LS2	LS2	1.4E-2	2.1E-3	1.6E-3						
LS3	LS3	5.2E-2	7.8E-3	6.0E-3						
LS4	LS4	1.4E-2	2.1E-3	1.6E-3						
LS5	LS5	5.2E-2	7.8E-3	6.0E-3						
LS7	LS7	6.5E-3	1.0E-3	7.8E-4						
LS8	LS8	6.5E-3	1.0E-3	7.8E-4						
LS10	LS10	1.5E-3	2.4E-4	2.0E-4						
LS11	LS11	1.2E-2	1.9E-3	1.6E-3						
LS12	LS12	1.5E-3	2.4E-4	2.0E-4						
LSU	LSU	7.8E-5	7.8E-5	6.6E-5						
Mining Fugitive Sources Model Scenario: W3										
YPP	YPP	--	--	--			--	--	--	--
HFP	HFP	--	--	--			--	--	--	--
WEP	WEP	4.65	0.42	0.42			--	--	--	--
BT	BT	--	--	--			--	--	--	--
TSF	TSF	--	--	--			--	--	--	--
UGEXP	UGEXP	0.000021	0.000003	0.000003			--	--	--	--
YPPBL	YPPBL	--	--	--			--	--	--	--
HFPBL	HFPBL	--	--	--			--	--	--	--
WEPBL	WEPBL	1.76	0.10	0.10			5.90	0.49	219.49	219.49
BTBL	BTBL	--	--	--			--	--	--	--
STKP	STKP	--	--	--			--	--	--	--
FDRSF	FDRSF	--	--	--			--	--	--	--
HFDRSF	HFDRSF	0.30	0.16	0.16			--	--	--	--
YPDRSF	YPDRSF	--	--	--			--	--	--	--
WEDRSF	WEDRSF	--	--	--			--	--	--	--
HR	HR	21.56	2.16	2.16			--	--	--	--
ACCRD	ACCRD	0.05	0.005	0.005			--	--	--	--

1.11 PP – Plot Plan

A scaled plot plan of the entire facility can be found here. Figure 1 shows the SGP mining operations with the haul roads and operations boundary. Figure 2 shows the SGP processing and refining area, Figure 3 shows the administration, warehouse and storage area, and Figure 4 shows the worker housing facility. Figures 2, 3 and 4 show the buildings and emission points with identification numbers. The building heights can be found on the Modeling Information – Buildings and Structures Form MI4. The location of the gasoline and diesel tanks is to be determined so these emission points are excluded from the figures.

Figure 1. SGP Mining Operation and Stibnite Road Access Route

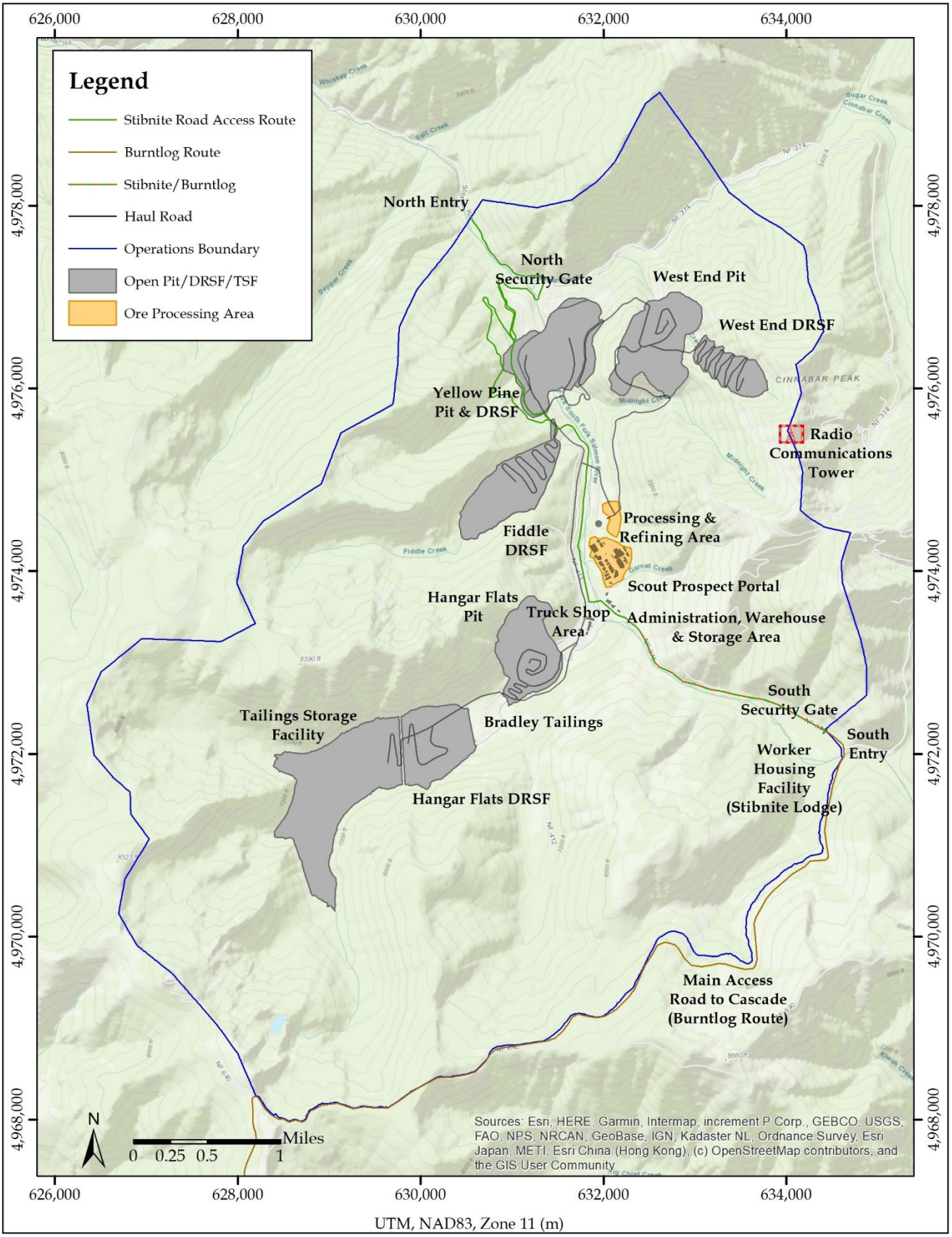


Figure 2. SGP Process & Refining Area Buildings and Emission Points

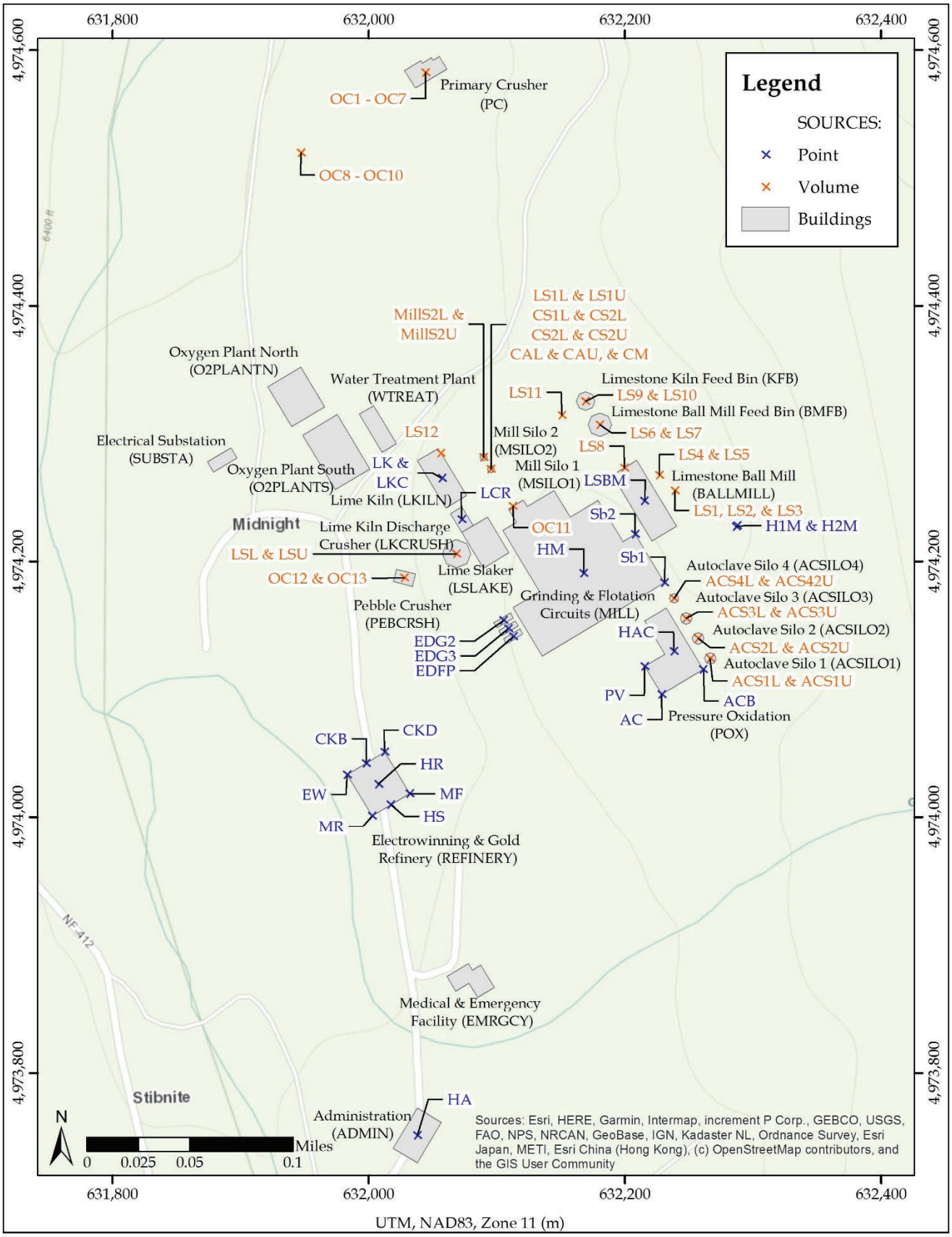


Figure 3. SGP Administration, Warehouse & Storage Area Buildings and Emission Points

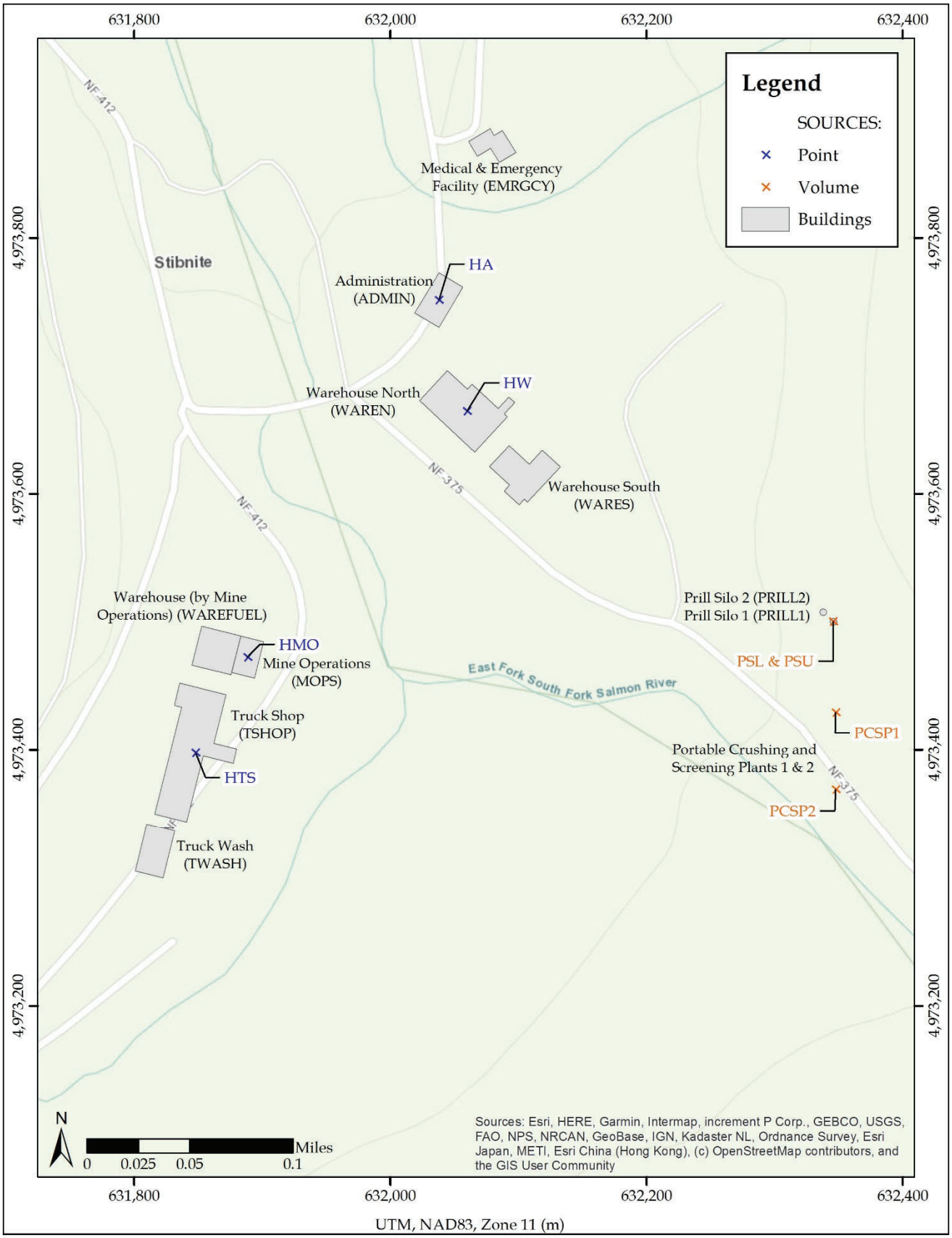
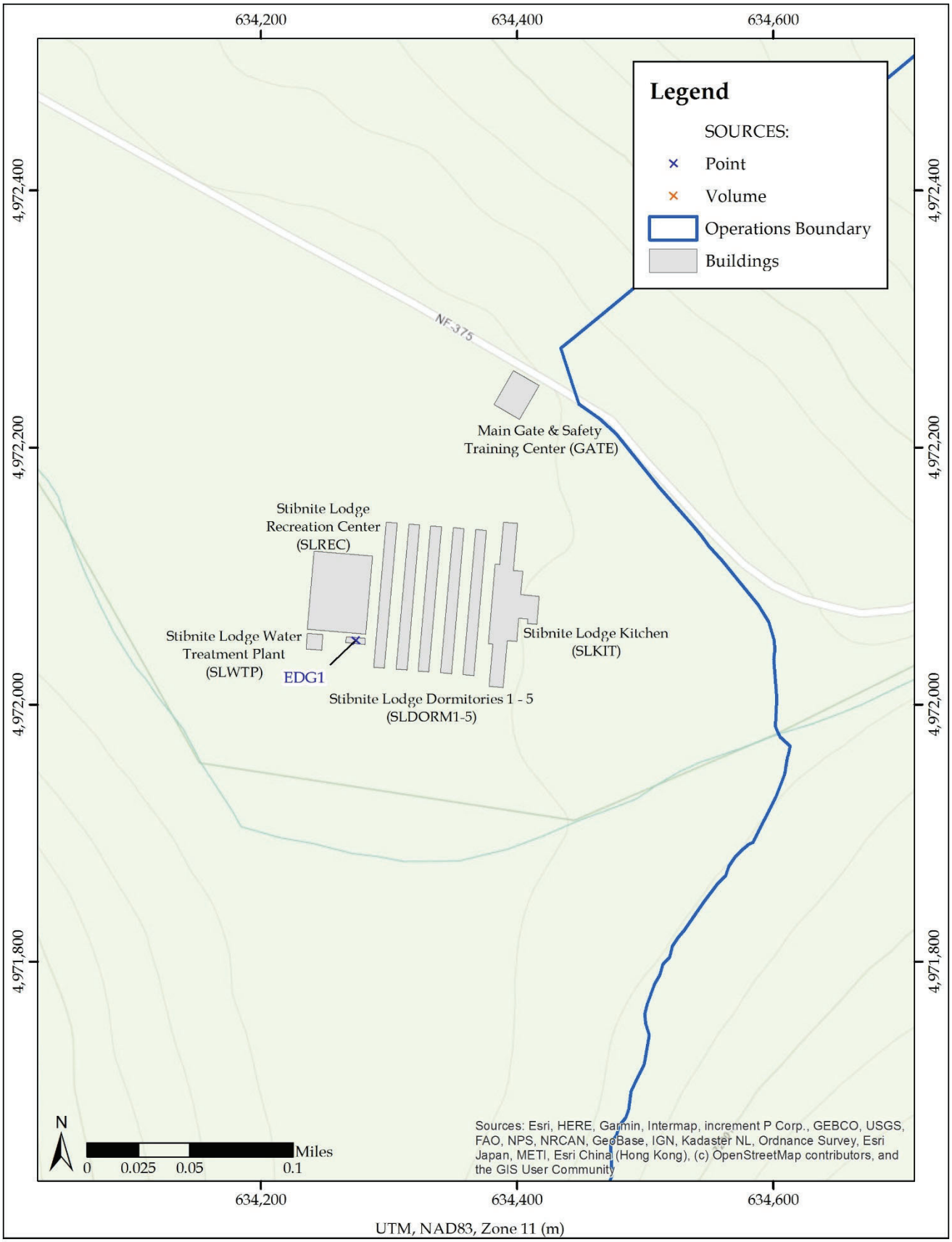


Figure 4. SGP Worker Housing Facility Buildings and Emission Points



1.12 Forms MI1-MI4 – Modeling – Excel workbook, 4 sheets

The following DEQ Air Quality Program Permit to Construct Application forms are provided here.

- Modeling Information - Impact Analysis Form MI1 (1 page)
- Modeling Information - Point Source Stack Parameters Form MI2 (3 pages)
- Modeling Information - Fugitive Source Parameters Form MI3 (4 pages)
- Modeling Information – Buildings and Structures Form MI4 (1 page)

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Midas Gold Idaho, Inc.
Facility Name:	Stibnite Gold Project
Facility ID No.:	
Brief Project Description:	Conventional open-pit mining operations and onsite ore preparation and gold extraction processes.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour		5	75.7	37	112.7	150	75%
	Annual		1	Revoked in 2006		0	50	0%
SO_2	3-hr		25	1.8	16.8	18.6	1300	1%
	24-hr		5	Revoked in 2010		0	365	0%
	Annual		1	Revoked in 2010		0	80	0%
NO_2	Annual		1	2.3	0.9	3.2	100	3%
CO	1-hr		2000	17,054	1,740	18,794	40000	47%
	8-hr		500	6,218	1,110	7,328	10000	73%

Additional NAAQS and Results

$PM_{2.5}$	24-hour			11.0	15	26.0	35	74%
	Annual			4.2	3.5	7.7	12	64%
NO_2	1-hr			116.7	4.3	121.0	188	64%
SO_2	1-hr			3.2	12.3	15.5	196	8%

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 3/27/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Midas Gold Idaho, Inc.
Facility Name:	Stibnite Gold Project
Facility ID No.:	
Brief Project Description:	Conventional open-pit mining operations and onsite ore preparation and gold extraction processes.

POINT SOURCE STACK PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	**Stack ID**	**UTM Easting (m)**	**UTM Northing (m)**	**Base Elevation (m)**	**Stack Height (m)**	**Modeled Diameter (m)**	**Stack Exit Temperature (K)**	**Stack Exit Flowrate (acfm)**	**Stack Exit Velocity (m/s)**	**Stack orientation (e.g., horizontal, rain cap)**
Point Source(s)										
Mill Lime Silo #1 Loading	LS1L	632,095	4,974,272	1,992	13.32	0.15	0.00	700	18.1	Vertical
Mill Lime Silo #2 Loading	MillS2L	632,090	4,974,282	1,990	13.32	0.15	0.00	700	18.1	Vertical
Sb Dryer (2.72 MMBtu/hr Propane-Fired)	Sb1	632,231	4,974,183	2,001	45.72	0.30	455.37	1,073	6.9	Vertical
Sb Bagging	Sb2	632,208	4,974,221	2,001	45.72	0.30	0.00	1,000	6.5	Vertical
Autoclave	AC	632,229	4,974,096	2,007	23.47	1.52	364.26	28,680	7.4	Vertical
POX Boiler (17 MMBtu/hr Propane-Fired)	ACB	632,261	4,974,116	2,007	23.47	0.61	455.37	6,703	10.8	Vertical
AC Lime Silo #1 Loading	ACS1L	632,267	4,974,124	2,007	17.44	0.23	0.00	1,400	16.1	Vertical
AC Lime Silo #2 Loading	ACS2L	632,257	4,974,140	2,007	17.44	0.23	0.00	1,400	16.1	Vertical
AC Lime Silo #3 Loading	ACS3L	632,248	4,974,156	2,007	17.44	0.23	0.00	1,400	16.1	Vertical
AC Lime Silo #4 Loading	ACS4L	632,238	4,974,171	2,007	14.49	0.23	0.00	1,400	16.1	Vertical
Carbon Regeneration Kiln (Drum)	CKD	632,013	4,974,051	1,970	16.76	0.15	338.71	180	5.1	Vertical
Carbon Regeneration Kiln (Burners)	CKB	631,998	4,974,042	1,970	14.02	0.30	455.37	889	5.8	Vertical
Electrowinning Cells and Pregnant Solution Tank	EW	631,983	4,974,033	1,970	16.76	0.30	310.93	3,740	24.2	Vertical
Mercury Retort	MR	632,003	4,974,001	1,970	16.76	0.09	338.71	20	1.5	Vertical
Induction Melting Furnace	MF	632,032	4,974,019	1,970	16.76	0.38	338.71	5,200	21.5	Vertical
Camp Emergency Generator (Mfr. Yr. >2007; diesel)	EDG1	634,274	4,972,050	2,114	2.13	0.46	866.48	10,328	29.7	Vertical
Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	EDG2	632,105	4,974,154	2,001	2.13	0.46	866.48	10,328	29.7	Vertical
Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	EDG3	632,109	4,974,148	2,002	2.13	0.46	866.48	10,328	29.7	Vertical

POINT SOURCE STACK PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Stack Height (m)	Modeled Diameter (m)	Stack Exit Temperature (K)	Stack Exit Flowrate (acfm)	Stack Exit Velocity (m/s)	Stack orientation (e.g., horizontal, rain cap)
Point Source(s)										
Mill Fire Pump (Mfr. Yr. >2009; diesel)	EDFP	632,113	4,974,141	2,003	2.13	0.23	866.48	2,066	23.8	Vertical
Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	PV	632,216	4,974,118	2,007	20.73	0.12	455.37	39	1.6	Vertical
Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	HS	632,017	4,974,010	1,970	14.02	0.40	455.37	1,972	7.5	Vertical
Mine Air Heater #1 (4 MMBtu/hr Propane-	H1M	632,287	4,974,227	2,000	2.13	0.40	455.37	1,577	6.0	Vertical
Mine Air Heater #2 (4 MMBtu/hr Propane-	H2M	632,288	4,974,228	2,000	2.13	0.21	455.37	1,577	20.8	Vertical
Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	HM	632,168	4,974,191	2,001	42.98	0.09	455.37	394	28.3	Vertical
Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	HAC	632,238	4,974,130	2,007	20.73	0.09	455.37	99	7.1	Vertical
Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	HR	632,008	4,974,026	1,970	14.02	0.09	455.37	99	7.1	Vertical
Admin HVAC Heater (0.25 MMBtu Propane-Fired)	HA	632,038	4,973,751	1,979	6.40	0.09	455.37	99	7.1	Vertical
Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	HMO	631,889	4,973,472	1,989	12.50	0.21	455.37	99	1.3	Vertical
Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	HTS	631,848	4,973,398	1,992	12.50	0.21	455.37	394	5.2	Vertical
Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	HW	632,060	4,973,664	1,984	12.50	0.21	455.37	394	5.2	Vertical
Prill Silos Loading (2 x 100 ton)	PSL	632,346	4,973,500	2,010	7.77	0.15	0.00	700	18.1	Vertical
Cement/Shotcrete Silo #1 Loading	CS1L	632,095	4,974,272	1,992	13.32	0.15	0.00	930	24.1	Vertical
Cement/Shotcrete Silo #2 Loading	CS2L	632,095	4,974,272	1,992	13.32	0.15	0.00	930	24.1	Vertical
Limestone transfer to Ball Mill Feed Bin	LS6	632,181	4,974,307	1,996	8.84	0.30	0.00	0.2	0.001	Horizontal
Limestone Ball Mill	LSBM	632,215	4,974,248	1,996	21.34	0.61	0.00	16,500	26.7	Vertical
Limestone transfer to Kiln Feed Bin	LS9	632,169	4,974,325	1,996	8.84	0.30	0.00	0.2	0.001	Horizontal
Parallel Flow Regenerative (PFR) Shaft Lime Kiln	LK	632,057	4,974,265	1,984	45.72	0.61	449.82	16,300	26.4	Vertical
PFR Shaft Lime Kiln Combustion	LKC	632,057	4,974,265	1,984	45.72	0.61	449.82	16,300	26.4	Vertical
Lime Mill Crushing and associated transfers In and Out	LCR	632,073	4,974,233	1,990	15.24	0.23	0.00	2,500	28.7	Vertical

POINT SOURCE STACK PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Stack Height (m)	Modeled Diameter (m)	Stack Exit Temperature (K)	Stack Exit Flowrate (acfm)	Stack Exit Velocity (m/s)	Stack orientation (e.g., horizontal, rain cap)
Point Source(s)										
Pebble Lime Silo Loading via Bucket Elevator	LSL	632,069	4,974,206	1,996	8.84	0.10	0.00	70	4.1	Vertical

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Midas Gold Idaho, Inc.
Facility Name:	Stibnite Gold Project
Facility ID No.:	
Brief Project Description:	Conventional open-pit mining operations and onsite ore preparation and gold extraction processes.

FUGITIVE SOURCE PARAMETERS

1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	**Stack ID**	**UTM Easting (m)**	**UTM Northing (m)**	**Base Elevation (m)**	**Release Height (m)**	**Easterly Length (m)**	**Northerly Length (m)**	**Angle from North (°)**	**Initial Vertical Dimension (m)**	**Initial Horizontal Dimension (m)**
Area Source(s)										
Mining Activity Sources										
Yellow Pine Pit	YPP	631,160	4,975,865	1,832	4.75	881.99	881.99	-8.00	4.42	
Hangar Flats Pit	HFP	630,925	4,972,884	1,993	4.75	490.99	490.99	0.00	4.42	
West End Pit	WEP	632,398	4,976,290	2,192	4.75	376.22	376.22	0.00	4.42	
Bradley Tailings	BT	630,110	4,972,105	2,012	4.75	820.00	420.00	0.00	4.42	
Tailing Storage Facility	TSF	628,496	4,971,000	2,097	0.00	1,156.79	1,156.79	0.00	0.00	
Scout Portal	UGEXP	632,362	4,973,690	2,018	0.00	4.88	4.88	0.00	0.00	
Volume Source(s)										
Process & Ancillary Sources										
Loader Transfer of Ore to Grizzly	OC1	632,045	4,974,583	1,969	19.51				18.15	3.75
Grizzly to Apron Feeder	OC2	632,045	4,974,583	1,969	19.51				18.15	3.75
Apron Feeder to Dribble	OC3	632,045	4,974,583	1,969	19.51				18.15	3.75
Apron Feeder to Vibrating Grizzly	OC4	632,045	4,974,583	1,969	19.51				18.15	3.75
Dribble Conveyor to Vibrating Grizzly	OC5	632,045	4,974,583	1,969	19.51				18.15	3.75
Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	OC6	632,045	4,974,583	1,969	19.51				18.15	3.75

FUGITIVE SOURCE PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North (°)	Initial Vertical Dimension (m)	Initial Horizontal Dimension (m)
Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	OC7	632,045	4,974,583	1,969	19.51				18.15	3.75
Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	OC8	631,947	4,974,520	1,957	10.91				10.15	0.21
Stockpile Transfers to Reclaim Conveyors	OC9	631,947	4,974,520	1,957	1.22				1.13	0.57
Reclaim Conveyors to SAG Mill Feed Conveyor	OC10	631,947	4,974,520	1,957	1.22				1.13	0.57
SAG Mill Feed Conveyor Transfer to SAG Mill	OC11	632,113	4,974,243	2,001	20.73				0.57	0.28
Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	OC12	632,028	4,974,187	1,973	3.05				2.84	2.32
Pebble Discharge Conveyor to SAG Mill Feed Conveyor	OC13	632,028	4,974,187	1,973	3.05				2.84	2.32
Mill Lime Silo #1 Unloading to SAG Mill Conveyor	LS1U	632,095	4,974,272	1,992	1.37				0.14	0.07
Mill Lime Silo #1 Unloading to SAG Mill Conveyor	LS1U	632,095	4,974,272	1,992	1.37				0.14	0.07
Mill Lime Silo #2 Unloading to SAG Mill Conveyor	MillS2U	632,090	4,974,282	1,990	1.37				0.14	0.07
AC Lime Silo #1 Unloading to Lime Slaker	ACS1U	632,267	4,974,124	2,007	1.37				0.14	0.07
AC Lime Silo #2 Unloading to Lime Slaker	ACS2U	632,257	4,974,140	2,007	1.37				0.14	0.07
AC Lime Silo #3 Unloading to Lime Slaker	ACS3U	632,248	4,974,156	2,007	1.37				0.14	0.07
AC Lime Silo #4 Unloading to Lime Slaker	ACS42U	632,238	4,974,171	2,007	1.37				0.14	0.07
AC Lime Silo #1 Unloading to Lime Slaker	ACS1U	632,267	4,974,124	2,007	1.37				0.14	0.07
AC Lime Silo #2 Unloading to Lime Slaker	ACS2U	632,257	4,974,140	2,007	1.37				0.14	0.07

FUGITIVE SOURCE PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North (°)	Initial Vertical Dimension (m)	Initial Horizontal Dimension (m)
AC Lime Silo #3 Unloading to Lime Slaker	ACS3U	632,248	4,974,156	2,007	1.37				0.14	0.07
AC Lime Silo #4 Unloading to Lime Slaker	ACS42U	632,238	4,974,171	2,007	1.37				0.14	0.07
Prill Silos Unloading (2 x 100 ton)	PSU	632,346	4,973,500	2,010	1.37				0.14	0.07
Cement/Shotcrete Silo #1 Unloading	CS1U	632,095	4,974,272	1,992	1.52				1.42	5.12
Cement/Shotcrete Silo #2 Unloading	CS2U	632,095	4,974,272	1,992	1.52				1.42	5.12
Aggregate Bin Loading	CAL	632,095	4,974,272	1,992	1.52				1.42	5.12
Aggregate Bin Unloading	CAU	632,095	4,974,272	1,992	1.52				1.42	5.12
Central Mixer Loading	CM	632,095	4,974,272	1,992	1.52				1.42	5.12
Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	PCSP1	632,348	4,973,429	2,009	2.13				1.98	13.13
Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	PCSP2	632,348	4,973,369	2,007	2.13				1.98	13.13
Limestone transfer to Primary Crusher Hopper	LS1	632,239	4,974,256	1,996	3.44				3.20	1.60
Primary Crushing and Associated Transfers In and Out	LS2	632,239	4,974,256	1,996	3.44				3.20	1.60
Primary Screening and Associated Transfers In and Out	LS3	632,239	4,974,256	1,996	3.44				3.20	1.60
Secondary Crushing and Associated Transfers In and Out	LS4	632,227	4,974,268	1,996	3.44				3.20	1.60

FUGITIVE SOURCE PARAMETERS										
1.	2.	3a.	3b.	4.	5.	6.	7.	8.	9.	10.
Emissions units	Stack ID	UTM Easting (m)	UTM Northing (m)	Base Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North (°)	Initial Vertical Dimension (m)	Initial Horizontal Dimension (m)
Secondary Screening and Associated Transfers In and Out	LS5	632,227	4,974,268	1,996	3.44				3.20	1.60
Limestone transfer to Ball Mill Feed Conveyor	LS7	632,181	4,974,307	1,996	1.07				0.43	0.07
Ball Mill Feed transfer to Ball Mill	LS8	632,200	4,974,273	1,996	8.53				0.57	0.28
Limestone transfer to Lime Kiln Feed Conveyor	LS10	632,169	4,974,325	1,996	1.07				0.43	0.07
Fines Screening and Associated Transfers In and Out	LS11	632,151	4,974,314	1,996	0.76				0.71	0.57
Kiln Feed transfer to PFR Shaft Lime Kiln	LS12	632,056	4,974,285	1,984	20.73				0.57	0.28
Pebble Lime Silo discharge to Lime Slaker	LSU	632,069	4,974,206	1,996	1.07				0.43	0.07
Mining Activity Sources										
Yellow Pine Pit Blasting	YPPBL	631,471	4,976,374	1,717	15.00				6.98	20.23
Hangar Flats Pit Blasting	HFPBL	631,171	4,973,129	1,891	15.00				6.98	20.23
West End Pit Blasting	WEPBL	632,586	4,976,478	1,994	15.00				6.98	20.23
Bradley Tailings Blasting	BTBL	630,520	4,972,315	2,012	15.00				6.98	20.23
PC Stockpile	STKP	632,112	4,974,616	1,980	4.75				4.42	53.35
Fiddle DRSF	FDRSF	630,981	4,974,903	2,115	4.75				4.42	180.22
Hangar Flats DRSF	HFDRSF	630,158	4,972,124	2,080	4.75				4.42	174.81
Yellow Pine DRSF	YPDRSF	631,491	4,976,383	1,904	4.75				4.42	182.21
West End DRSF	WEDRSF	633,392	4,976,207	2,376	4.75				4.42	124.05
Onsite Hauling	HR	Variable, provided in AERMOD files			4.75				4.42	15.14
Access Roads	ACCRD	Variable, provided in AERMOD files			2.98				2.77	6.10

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name:	Midas Gold Idaho, Inc.
Facility Name:	Stibnite Gold Project
Facility ID No.:	
Brief Project Description:	Conventional open-pit mining operations and onsite ore preparation and gold extraction processes.

BUILDING AND STRUCTURE INFORMATION

1.	2.	3.	4.	5.	6.	7.
Building ID Number	**Length (ft)**	**Width (ft)**	**Base Elevation (m)**	**Building Height (m)**	**Number of Tiers**	**Description/Comments**
PC			1,969	39.01	1	Dimensions and coordinates are provided in AERMOD and BPIP files
WTREAT			1,967	6.10	1	
O2PLANTN			1,957	6.10	1	
O2PLANTS			1,962	6.10	1	
SUBSTA			1,956	6.10	1	
MILL			2,001	42.67	1	
REFINERY			1,970	13.72	1	
EMRGCY			1,979	6.10	1	
ADMIN			1,979	6.10	1	
WAREN			1,984	12.19	1	
WARES			1,986	12.19	1	
MOPS			1,989	12.19	1	
WAREFUEL			1,988	12.19	1	
TSHOP			1,992	12.19	1	
TWASH			1,993	12.19	1	
PEBCRSH			1,973	6.10	1	
POX			2,007	20.42	1	
MSILO1			1,992	12.41	1	
MSILO2			1,990	12.41	1	
ACSILO1			2,007	16.52	1	
ACSILO2			2,007	16.52	1	
ACSILO3			2,007	16.52	1	
ACSILO4			2,007	13.58	1	
PRILL1			2,010	6.85	1	
PRILL2			2,008	6.85	1	
GATE			2,123	3.66	1	
SLKIT			2,122	7.62	1	
SLDORM1			2,122	10.67	1	
SLDORM2			2,120	10.67	1	
SLDORM3			2,118	10.67	1	
SLDORM4			2,117	10.67	1	
SLDORM5			2,116	10.67	1	
SLREC			2,114	10.67	1	
SLWTP			2,114	7.62	1	
BALLMILL			1,996	18.29	1	
LKILN			1,984	42.67	1	
LKCRUSH			1,990	12.19	1	
LSLAKE			1,996	6.10	1	
KFB			1,996	7.92	1	
BMFB			1,996	7.92	1	

1.13 Form FRA – Federal Regulation Applicability

Table 13 provides a list of federal regulations determined to be applicable to the Midas Gold – SGP. A detailed regulatory review has been provided for each regulation, with the exception of NESHAP, Subpart ZZZZ.[1] Additional details on the regulatory analysis can be found in Section 4.0 of this application.

Table 13. Applicable Federal Regulations

Regulation	Description
NSPS, Subpart LL 40 CFR §60.380	Standards of Performance for Metallic Mineral Processing Plants
NSPS, Subpart OOO 40 CFR §60.670	Standards of Performance for Nonmetallic Mineral Processing Plants
NSPS, Subpart IIII 40 CFR §60.4200	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NESHAP, Subpart ZZZZ 40 CFR §63.6580	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
NESHAP, Subpart CCCCCC 40 CFR §63.11110	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities
NESHAP, Subpart EEEEEEE 40 CFR §63.11640	National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category

[1] As discussed in Section 4.0 of this application, for the proposed sources, compliance with NESHAP, Subpart ZZZZ is accomplished by complying with the requirements of NSPS, Subpart IIII. No further requirements under NESHAP apply.

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Federal Rule Applicability **– Form FRA**
6/7/2018

In each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name:	2. Facility Name:
Midas Gold Idaho, Inc.	Stibnite Gold Project
3. Brief Project Description:	Conventional open-pit mining and ore preparation and gold extraction processes.

APPLICABILITY DETERMINATION	
4. List all applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). List all non-applicable subparts of the NSPS which may appear to apply to the facility but do not. Examples of NSPS-affected emissions units include internal combustion engines, boilers, turbines, etc. Applicant must thoroughly review the list of affected emissions units.	List of all applicable subpart(s): 40 CFR 60.380, 40 CFR 60.670, 40 CFR 60.4200 List of all non-applicable subpart(s) which may appear to apply but do not: 40 CFR 60.40c, 40 CFR 60.340 ☐ Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR part 61 and 40 CFR part 63). List all non-applicable subparts of the NESHAP which may appear to apply to the facility but do not. Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. Reference EPA's webpage on NESHAPs for more information.	List of all applicable subpart(s): 40 CFR 63.6580, 40 CFR 63.11110, 40 CFR List of all non-applicable subpart(s) which may appear to apply but do not: 40 CFR 63.7080 ☐ Not Applicable
6. For each subpart identified above, conduct a complete regulatory analysis using the instructions and referencing the example on the following pages. **Note**: Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation does or does not apply. Regulatory reviews submitted with insufficient detail will be determined incomplete.	☒ A detailed regulatory review has been provided ☐ DEQ has already been provided a detailed regulatory review (please provide a reference)

IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT.

It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand those requirements prior to submittal of the application but that DEQ will not perform the required technical or regulatory analyses on the applicant's behalf.

NSPS, Subpart LL – Standards of Performance for Metallic Mineral Processing Plants

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of January 18, 2019

Title 40 → Chapter I → Subchapter C → Part 60 → Subpart LL

Title 40: Protection of Environment
PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart LL—Standards of Performance for Metallic Mineral Processing Plants

Contents

§60.380 Applicability and designation of affected facility.
§60.381 Definitions.
§60.382 Standard for particulate matter.
§60.383 Reconstruction.
§60.384 Monitoring of operations.
§60.385 Recordkeeping and reporting requirements.
§60.386 Test methods and procedures.

SOURCE: 49 FR 6464, Feb. 21, 1984, unless otherwise noted.

§60.380 Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in metallic mineral processing plants: ~~Each crusher and screen in open-pit mines;~~ each crusher, ~~screen, bucket elevator,~~ conveyor belt transfer point, ~~thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station,~~ truck unloading station, ~~railcar loading station, and railcar unloading station~~ at the mill ~~or concentrator with the following exceptions. All facilities located in underground mines are exempted from the provisions of this subpart. At uranium ore processing plants, all facilities subsequent to and including the beneficiation of uranium ore are exempted from the provisions of this subpart.~~

(b) An affected facility under paragraph (a) of this section that commences construction ~~or modification~~ after August 24, 1982, is subject to the requirements of this part.

Midas Gold is proposing to operate a metallic mineral processing plant at the Stibnite Gold Project, where they will operate a combination of equipment to produce gold and silver concentrates from ore. Therefore, the provisions of this subpart will be applicable per §60.380(a). The metallic mineral processing plant will include crushers, conveyor belt transfer points, and a truck unloading station. The proposed metallic mineral processing plant will be subject to the requirements of this subpart as it will commence construction after August 24, 1982, per §60.380(b).

§60.381 Definitions.

All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

~~*Bucket elevator* means a conveying device for metallic minerals consisting of a head and foot assembly that supports and drives an endless single or double strand chain or belt to which buckets are attached.~~

~~*Capture system* means the equipment used to capture and transport particulate matter generated by one or more affected facilities to a control device.~~

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more affected facilities at a metallic mineral processing plant.

Conveyor belt transfer point means a point in the conveying operation where the metallic mineral or metallic mineral concentrate is transferred to or from a conveyor belt except where the metallic mineral is being transferred to a stockpile.

Crusher means a machine used to crush any metallic mineral and includes feeders or conveyors located immediately below the crushing surfaces. Crushers include, but are not limited to, the following types: jaw, gyratory, cone, and hammermill.

~~*Enclosed storage area* means any area covered by a roof under which metallic minerals are stored prior to further processing or loading.~~

Metallic mineral concentrate means a material containing metallic compounds in concentrations higher than naturally occurring in ore but requiring additional processing if pure metal is to be isolated. A metallic mineral concentrate contains at least one of the following metals in any of its oxidation states and at a concentration that contributes to the concentrate's commercial value: ~~Aluminum, copper,~~ gold, ~~iron, lead, molybdenum~~, silver, ~~titanium, tungsten, uranium, zinc, and zirconium.~~ This definition shall not be construed as requiring that material containing metallic compounds be refined to a pure metal in order for the material to be considered a metallic mineral concentrate to be covered by the standards.

Metallic mineral processing plant means any combination of equipment that produces metallic mineral concentrates from ore. Metallic mineral processing commences with the mining of ore and includes all operations either up to and including the loading of wet or dry concentrates or solutions of metallic minerals for transfer to facilities at non-adjacent locations that will subsequently process metallic concentrates into purified metals (or other products), or up to and including all material transfer and storage operations that precede the operations that produce refined metals (or other products) from metallic mineral concentrates at facilities adjacent to the metallic mineral processing plant. This definition shall not be construed as requiring that mining of ore be conducted in order for the combination of equipment to be considered a metallic mineral processing plant. (See also the definition of *metallic mineral concentrate.*)

Process fugitive emissions means particulate matter emissions from an affected facility that are not collected by a capture system.

~~*Product packaging station* means the equipment used to fill containers with metallic compounds or metallic mineral concentrates.~~

~~*Railcar loading station* means that portion of a metallic mineral processing plant where metallic minerals or metallic mineral concentrates are loaded by a conveying system into railcars.~~

~~*Railcar unloading station* means that portion of a metallic mineral processing plant where metallic ore is unloaded from a railcar into a hopper, screen, or crusher.~~

~~*Screen* means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series and retaining oversize material on the mesh surfaces (screens).~~

~~*Stack emissions* means the particulate matter captured and released to the atmosphere through a stack, chimney, or flue.~~

Storage bin means a facility for storage (including surge bins and hoppers) of metallic minerals prior to further processing or loading.

Surface moisture means water that is not chemically bound to a metallic mineral or metallic mineral concentrate.

~~*Thermal dryer* means a unit in which the surface moisture content of a metallic mineral or a metallic mineral concentrate is reduced by direct or indirect contact with a heated gas stream.~~

~~*Truck loading station* means that portion of a metallic mineral processing plant where metallic minerals or metallic mineral concentrates are loaded by a conveying system into trucks.~~

Truck unloading station means that portion of a metallic mineral processing plant where metallic ore is unloaded from a truck into a hopper, screen, or crusher.

[49 FR 6464, Feb. 21, 1984, as amended at 65 FR 61760, Oct. 17, 2000]

The highlighted definitions in §60.381 will apply to the Stibnite Gold Project affected facilities under this subpart.

§60.382 Standard for particulate matter.

~~(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from an affected facility any stack emissions that:~~

~~(1) Contain particulate matter in excess of 0.05 grams per dry standard cubic meter (0.05 g/dscm).~~

~~(2) Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing emission control device.~~

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.

[49 FR 6464, Feb. 21, 1984, as amended at 65 FR 61760, Oct. 17, 2000; 79 FR 11250, Feb. 27, 2014]

§60.382(a) will not apply to the Stibnite Gold Project as it will not have any affected facilities subject to this subpart with stack emissions.

§60.382(b) will apply to the Stibnite Gold Project affected facilities subject to this subpart. The affected facilities' process fugitive emissions may not exhibit greater than 10 percent opacity.

~~§60.383 Reconstruction.~~

~~(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under §60.15. Ore-contact surfaces are: Crushing surfaces; screen meshes, bars, and plates; conveyor belts; elevator buckets; and pan feeders.~~

~~(b) Under §60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) that are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following August 24, 1982.~~

§60.383 will not apply as the Stibnite Gold Project affected facilities subject to this subpart are not being reconstructed.

~~§60.384 Monitoring of operations.~~

~~(a) The owner or operator subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber for any affected facility using a wet scrubbing emission control device. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals (±1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.~~

~~(b) The owner or operator subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to a wet scrubber for any affected facility using any type of wet scrubbing emission control device. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on at least an annual basis in accordance with manufacturer's instructions.~~

§60.384 will not apply as Midas Gold is not proposing to use a wet scrubbing emission control device on the affected facilities subject to this subpart.

§60.385 Recordkeeping and reporting requirements.

(a) The owner or operator subject to the provisions of this subpart shall conduct a performance test and submit to the Administrator a written report of the results of the test as specified in §60.8(a).

~~(b) During the initial performance test of a wet scrubber, and at least weekly thereafter, the owner or operator shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.~~

~~(c) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than ±30 percent from the average obtained during the most recent performance test.~~

~~(d) The reports required under paragraph (c) shall be postmarked within 30 days following the end of the second and fourth calendar quarters.~~

(e) The requirements of this subsection remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected sources within the State will be relieved of the obligation to comply with this subsection, provided that they comply with requirements established by the State.

[49 FR 6464, Feb. 21, 1984, as amended at 54 FR 6676, Feb. 14, 1989; 65 FR 61760, Oct. 17, 2000]

§60.385(a) will apply to the Stibnite Gold Project affected facilities subject to this subpart, and therefore Midas Gold will be required to submit written reports of the results of the performance tests conducted.

§60.385(b)-(d) will not apply as Midas Gold is not proposing the use of a wet scrubber on the affected facilities subject to this subpart.

§60.385(e) will apply to the Stibnite Gold Project affected facilities subject to this subpart and will serve as informative.

§60.386 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the particulate matter standards §60.382 as follows:

~~(1) Method 5 or 17 shall be used to determine the particulate matter concentration. The sample volume for each run shall be at least 1.70 dscm (60 dscf). The sampling probe and filter holder of Method 5 may be operated without heaters if the gas stream being sampled is at ambient temperature. For gas streams above ambient temperature, the Method 5 sampling train shall be operated with a probe and filter temperature slightly above the effluent temperature (up to a maximum filter temperature of 121 °C (250 °F)) in order to prevent water condensation on the filter.~~

(2) Method 9 and the procedures in §60.11 shall be used to determine opacity from ~~stack emissions and~~ process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed. A single visible emission observer may conduct visible emission observations for up to three fugitive, ~~stack, or vent~~ emission points within a 15-second interval. This option is subject to the following limitations:

(i) No more than three emission points are read concurrently;

(ii) All three emission points must be within a 70° viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points; and

(iii) If an opacity reading for any one of the three emission points is within 5 percent opacity of the application standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

~~(c) To comply with §60.385(c), the owner or operator shall use the monitoring devices in §60.384(a) and (b) to determine the pressure loss of the gas stream through the scrubber and scrubbing liquid flow rate at any time during each particulate matter run, and the average of the three determinations shall be computed.~~

[54 FR 6676, Feb. 14, 1989, as amended at 65 FR 61760, Oct. 17, 2000; 79 FR 11250, Feb. 27, 2014]

§60.386(a) and (b)(2) will apply to the Stibnite Gold Project affected facilities subject to this subpart and Midas Gold will be required to conduct performance test using the specified test methods and procedures.

§60.386(b)(1) will not apply as the Stibnite Gold Project affected facilities subject to this subpart are not subject to the PM concentration standard in §60.382(a), and therefore Midas Gold will not be required to conduct a performance test to determine PM concentration.

§60.386(c) will not apply as Midas Gold is not proposing the use of a wet scrubber on the affected facilities subject to this subpart and is therefore not subject to §60.385(c).

NSPS, Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

e-CFR data is current as of January 18, 2019

Title 40: Protection of Environment
PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES (CONTINUED)

Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants

Contents

§60.670 Applicability and designation of affected facility.
§60.671 Definitions.
§60.672 Standard for particulate matter (PM).
§60.673 Reconstruction.
§60.674 Monitoring of operations.
§60.675 Test methods and procedures.
§60.676 Reporting and recordkeeping.
Table 1 to Subpart OOO of Part 60—Exceptions to Applicability of Subpart A to Subpart OOO
Table 2 to Subpart OOO of Part 60—Stack Emission Limits for Affected Facilities With Capture Systems
Table 3 to Subpart OOO of Part 60—Fugitive Emission Limits

SOURCE: 74 FR 19309, Apr. 28, 2009, unless otherwise noted.

§60.670 Applicability and designation of affected facility.

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, ~~bucket elevator,~~ belt conveyor, ~~bagging operation,~~ storage bin, ~~enclosed truck or railcar loading station~~. ~~Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.~~

~~(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in §60.671).~~

~~(b) An affected facility that is subject to the provisions of subparts F or I of this part or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.~~

(c) Facilities at the following plants are not subject to the provisions of this subpart:

~~(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 23 megagrams per hour (25 tons per hour) or less;~~

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 136 megagrams per hour (150 tons per hour) or less; and

~~(3) Common clay plants and pumice plants with capacities, as defined in §60.671, of 9 megagrams per hour (10 tons per hour) or less.~~

~~(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in §60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of §§60.672, 60.674, and 60.675 except as provided for in paragraph (d)(3) of this section.~~

~~(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in §60.676(a).~~

~~(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§60.672, 60.674 and 60.675.~~

(e) An affected facility under paragraph (a) of this section that commences construction, ~~modification, or reconstruction~~ after August 31, 1983, is subject to the requirements of this part.

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that do not apply to owners and operators of affected facilities subject to this subpart or that apply with certain exceptions.

Midas Gold is proposing to operate a nonmetallic mineral processing plant at the Stibnite Gold Project, where they will process limestone. Therefore, the provisions of this subpart will apply per §60.670(a)(1). The limestone mineral processing will consist of a primary and secondary crusher, a primary and secondary screening operation, a ball mill, storage bins and conveyors. The proposed nonmetallic mineral processing plants will be subject to the requirements of this subpart as it will commence construction after August 31, 1983 per §60.670(e). Table 1 of this subpart provides exceptions to applicability per §60.670(f).
In addition, certain construction and maintenance activities during operations may require sized aggregate. To allow for the operational flexibility to produce construction aggregate onsite, Midas Gold is including two portable crushing and screening plants in this application. Each portable plant may include primary and secondary crushers and screens, and multiple conveyors. Each portable plant will be rated at less than 150 ton/hr and therefore exempt from requirements of this subpart per §60.670(c)(2).

§60.671 Definitions.

All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

~~*Bagging operation* means the mechanical process by which bags are filled with nonmetallic minerals.~~

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

~~*Bucket elevator* means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.~~

Building means any frame structure with a roof.

Capacity means the cumulative rated capacity of all initial crushers that are part of the plant.

Capture system means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more affected facilities to a control device.

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more affected facilities at a nonmetallic mineral processing plant.

Conveying system means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include but are not limited to the following: Feeders, belt conveyors, bucket elevators and pneumatic systems.

Crush or *Crushing* means to reduce the size of nonmetallic mineral material by means of physical impaction of the crusher or grinding mill upon the material.

Crusher means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: Jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

~~*Enclosed truck or railcar loading station* means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.~~

Fixed plant means any nonmetallic mineral processing plant at which the processing equipment specified in §60.670(a) is attached by a cable, chain, turnbuckle, bolt or other means (except electrical connections) to any anchor, slab, or structure including bedrock.

Fugitive emission means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

Grinding mill means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: Hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

Initial crusher means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.

Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals:

~~(1)~~ Crushed and Broken Stone, including Limestone, ~~Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.~~

~~(2) Sand and Gravel.~~

~~(3) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.~~

~~(4) Rock Salt.~~

~~(5) Gypsum (natural or synthetic).~~

~~(6) Sodium Compounds, including Sodium Carbonate, Sodium Chloride, and Sodium Sulfate.~~

~~(7) Pumice.~~

~~(8) Gilsonite.~~

~~(9) Talc and Pyrophyllite.~~

~~(10) Boron, including Borax, Kernite, and Colemanite.~~

~~(11) Barite.~~

~~(12) Fluorospar.~~

~~(13) Feldspar.~~

~~(14) Diatomite.~~

~~(15) Perlite.~~

~~(16) Vermiculite.~~

~~(17) Mica.~~

~~(18) Kyanite, including Andalusite, Sillimanite, Topaz, and Dumortierite.~~

Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, ~~power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in §60.670 (b) and (c).~~

~~*Portable plant* means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.~~

Production line means all affected facilities (crushers, grinding mills, screening operations, ~~bucket elevators,~~ belt conveyors, ~~bagging operations,~~ storage bins, ~~and enclosed truck and railcar loading stations~~) which are directly connected or are connected together by a conveying system.

Saturated material means, for purposes of this subpart, mineral material with sufficient surface moisture such that particulate matter emissions are not generated from processing of the material through screening operations, bucket elevators and belt conveyors. Material that is wetted solely by wet suppression systems is not considered to be “saturated” for purposes of this definition.

Screening operation means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens). Grizzly feeders associated with truck dumping and static (non-moving) grizzlies used anywhere in the nonmetallic mineral processing plant are not considered to be screening operations.

~~*Seasonal shut down* means shut down of an affected facility for a period of at least 45 consecutive days due to weather or seasonal market conditions.~~

Size means the rated capacity in tons per hour of a crusher, grinding mill, ~~bucket elevator, bagging operation, or enclosed~~

~~truck or railcar loading station;~~ the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

Stack emission means the particulate matter that is released to the atmosphere from a capture system.

Storage bin means a facility for storage (including surge bins) of nonmetallic minerals prior to further processing or loading.

Transfer point means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

Truck dumping means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include but are not limited to: Trucks, front end loaders, skip hoists, and railcars.

Vent means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

~~*Wet material processing operation(s)* means any of the following:~~

~~(1) Wet screening operations (as defined in this section) and subsequent screening operations, bucket elevators and belt conveyors in the production line that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line; or~~

~~(2) Screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations (as defined in this section) that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line.~~

~~*Wet mining operation* means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this subpart from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.~~

~~*Wet screening operation* means a screening operation at a nonmetallic mineral processing plant which removes unwanted material or which separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.~~

The highlighted definitions in §60.671 will apply to the Stibnite Gold Project affected facilities subject to this subpart.

§60.672 Standard for particulate matter (PM).

(a) Affected facilities must meet the stack emission limits and compliance requirements in Table 2 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.8. The requirements in Table 2 of this subpart apply for affected facilities with capture systems used to capture and transport particulate matter to a control device.

(b) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11. The requirements in Table 3 of this subpart apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

~~(c) [Reserved]~~

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

(e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed 7 percent opacity; and

(2) Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of this subpart.

~~(f) Any baghouse that controls emissions from only an individual, enclosed storage bin is exempt from the applicable stack PM concentration limit (and associated performance testing) in Table 2 of this subpart but must meet the applicable stack opacity limit and compliance requirements in Table 2 of this subpart. This exemption from the stack PM concentration limit does~~

~~not apply for multiple storage bins with combined stack emissions.~~

The Stibnite Gold Project Limestone Ball Mill (Source ID LSBM) affected facility will be subject to the stack emission limits and compliance requirements in Table 2 of this subpart as required by §60.672(a), within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup.

Except as discussed below, all other affected facilities in the Stibnite Gold Project nonmetallic mineral processing plant will be subject to the fugitive emission limits and compliance requirements in Table 3 of this subpart as required by §60.672(b), within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup.

§60.672(d) will apply to the Limestone transfer to Primary Crusher Hopper (Source ID LS1), which will therefore be exempt from the particulate matter standards in this subpart.

§60.672(e) will apply to any Stibnite Gold Project affected facility subject to this subpart that is enclosed in a building. Per §60.672(e), any such affected facility must comply with the stated standards individually, or the building enclosing the affected facilities must comply with the standards in §60.672(e)(1) or (2), as applicable.

§60.672(f) will not apply as Midas Gold is not proposing the use of a baghouse on an individual, enclosed storage bin.

~~§60.673 Reconstruction.~~

~~(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under §60.15. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.~~

~~(b) Under §60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following August 31, 1983.~~

§60.673 will not apply as the Stibnite Gold Project affected facilities are not being reconstructed.

§60.674 Monitoring of operations.

~~(a) The owner or operator of any affected facility subject to the provisions of this subpart which uses a wet scrubber to control emissions shall install, calibrate, maintain and operate the following monitoring devices:~~

~~(1) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals ±1 inch water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.~~

~~(2) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.~~

~~(b) The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expediently as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under §60.676(b).~~

~~(1) If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of this subpart provided that the affected facility meets the criteria in paragraphs (b)(1)(i) and (ii) of this section:~~

~~(i) The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to paragraph (b) of this section and §60.676(b), and~~

~~(ii) The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under §60.11 of this part and §60.675 of this subpart.~~

~~(2) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under §60.676(b) must specify the control mechanism being used instead of the water sprays.~~

(c) Except as specified in paragraph (d) ~~or (e)~~ of this section, the owner or operator of any affected facility for which construction, ~~modification, or reconstruction~~ commenced on or after April 22, 2008, that uses a baghouse to control emissions must conduct quarterly 30-minute visible emissions inspections using EPA Method 22 (40 CFR part 60, appendix A-7). The Method 22 (40 CFR part 60, appendix A-7) test shall be conducted while the baghouse is operating. The test is successful if no visible emissions are observed. If any visible emissions are observed, the owner or operator of the affected facility must initiate corrective action within 24 hours to return the baghouse to normal operation. The owner or operator must record each Method 22 (40 CFR part 60, appendix A-7) test, including the date and any corrective actions taken, in the logbook required under §60.676(b). The owner or operator of the affected facility may establish a different baghouse-specific success level for the visible emissions test (other than no visible emissions) by conducting a PM performance test according to §60.675(b) simultaneously with a Method 22 (40 CFR part 60, appendix A-7) to determine what constitutes normal visible emissions from that affected facility's baghouse when it is in compliance with the applicable PM concentration limit in Table 2 of this subpart. The revised visible emissions success level must be incorporated into the permit for the affected facility.

(d) As an alternative to the periodic Method 22 (40 CFR part 60, appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility for which construction~~, modification, or reconstruction~~ commenced on or after April 22, 2008, that uses a baghouse to control emissions may use a bag leak detection system. The owner or operator must install, operate, and maintain the bag leak detection system according to paragraphs (d)(1) through (3) of this section.

(1) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(1)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per dry standard cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator shall continuously record the output from the bag leak detection system using electronic or other means (*e.g.*, using a strip chart recorder or a data logger).

(iii) The bag leak detection system must be equipped with an alarm system that will sound when the system detects an increase in relative particulate loading over the alarm set point established according to paragraph (d)(1)(iv) of this section, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) In the initial adjustment of the bag leak detection system, the owner or operator must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(v) Following initial adjustment, the owner or operator shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided in paragraph (d)(1)(vi) of this section.

(vi) Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by paragraph (d)(2) of this section.

(vii) The owner or operator must install the bag leak detection sensor downstream of the fabric filter.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) The owner or operator of the affected facility must develop and submit to the Administrator or delegated authority for approval of a site-specific monitoring plan for each bag leak detection system. The owner or operator must operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system, including quality assurance procedures;

(iv) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(v) How the bag leak detection system output will be recorded and stored; and

(vi) Corrective action procedures as specified in paragraph (d)(3) of this section. In approving the site-specific monitoring plan, the Administrator or delegated authority may allow owners and operators more than 3 hours to alleviate a specific

condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

(3) For each bag leak detection system, the owner or operator must initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in paragraph (d)(2)(vi) of this section, the owner or operator must alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(i) Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in PM emissions;

(ii) Sealing off defective bags or filter media;

(iii) Replacing defective bags or filter media or otherwise repairing the control device;

(iv) Sealing off a defective fabric filter compartment;

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or

(vi) Shutting down the process producing the PM emissions.

~~(e) As an alternative to the periodic Method 22 (40 CFR part 60, appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility that is subject to the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) may follow the continuous compliance requirements in row 1 items (i) through (iii) of table 6 to subpart AAAAA of 40 CFR part 63.~~

§60.674(a) will not apply as Midas Gold is not proposing to use a wet scrubber to control emissions from the affected facilities subject to this subpart.

§60.674(b) will not apply as Midas Gold is not proposing the use of wet suppression to control emissions from the affected facilities subject to this subpart.

§60.674(c) will apply as the Stibnite Gold Project nonmetallic mineral processing plant will commence construction after April 22, 2008, and Midas Gold is proposing to use a baghouse to control emissions from the Limestone Ball Mill. Midas Gold will be required to conduct quarterly Method 22 30-minute visible emission inspections or use an alternate method per §60.674(d).

§60.674(d) will apply and provides an alternative to the Method 22 inspections required by §60.674(c).

§60.674(e) will not apply as the Stibnite Gold Project is not a major source of HAP emission, and therefore the nonmetallic mineral processing plant is not subject to the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA).

§60.675 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendices A-1 through A-7 of this part or other methods and procedures as specified in this section, except as provided in §60.8(b). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(b) The owner or operator shall determine compliance with the PM standards in §60.672(a) as follows:

(1) Except as specified in paragraphs (e)(3) and (4) of this section, Method 5 of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall be used to determine the particulate matter concentration. The sample volume shall be at least 1.70 dscm (60 dscf). For Method 5 (40 CFR part 60, appendix A-3), if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters. If the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than 121 °C (250 °F), to prevent water condensation on the filter.

(2) Method 9 of appendix A-4 of this part and the procedures in §60.11 shall be used to determine opacity.

(c)(1) In determining compliance with the particulate matter standards in §60.672(b) or §60.672(e)(1), the owner or operator shall use Method 9 of appendix A-4 of this part and the procedures in §60.11, with the following additions:

(i) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources

(*e.g.,* road dust). The required observer position relative to the sun (Method 9 of appendix A-4 of this part, Section 2.1) must be followed.

~~(iii) For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.~~

~~(2)(i) In determining compliance with the opacity of stack emissions from any baghouse that controls emissions only from an individual enclosed storage bin under §60.672(f) of this subpart, using Method 9 (40 CFR part 60, appendix A-4), the duration of the Method 9 (40 CFR part 60, appendix A-4) observations shall be 1 hour (ten 6-minute averages).~~

~~(ii) The duration of the Method 9 (40 CFR part 60, appendix A-4) observations may be reduced to the duration the affected facility operates (but not less than 30 minutes) for baghouses that control storage bins or enclosed truck or railcar loading stations that operate for less than 1 hour at a time.~~

(3) When determining compliance with the fugitive emissions standard for any affected facility described under §60.672(b) or §60.672(e)(1) of this subpart, the duration of the Method 9 (40 CFR part 60, appendix A-4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 of this subpart must be based on the average of the five 6-minute averages.

(d) To demonstrate compliance with the fugitive emission limits for buildings specified in §60.672(e)(1), the owner or operator must complete the testing specified in paragraph (d)(1) and (2) of this section. Performance tests must be conducted while all affected facilities inside the building are operating.

(1) If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR part 60, appendix A-4) performance test according to this section and §60.11.

~~(2) If the building encloses only affected facilities that commenced construction, modification, or reconstruction before April 22, 2008, and the owner or operator has previously conducted an initial Method 22 (40 CFR part 60, appendix A-7) performance test showing zero visible emissions, then the owner or operator has demonstrated compliance with the opacity limit in §60.672(e)(1). If the owner or operator has not conducted an initial performance test for the building before April 22, 2008, then the owner or operator must conduct an initial Method 9 (40 CFR part 60, appendix A-4) performance test according to this section and §60.11 to show compliance with the opacity limit in §60.672(e)(1).~~

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of paragraph (c) of this section, if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

(i) No more than three emission points may be read concurrently.

(ii) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

(iii) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

(3) Method 5I of appendix A-3 of this part may be used to determine the PM concentration as an alternative to the methods specified in paragraph (b)(1) of this section. Method 5I (40 CFR part 60, appendix A-3) may be useful for affected facilities that operate for less than 1 hour at a time such as (but not limited to) storage bins or enclosed truck or railcar loading stations.

(4) In some cases, velocities of exhaust gases from building vents may be too low to measure accurately with the type S pitot tube specified in EPA Method 2 of appendix A-1 of this part [*i.e.,* velocity head <1.3 mm H_2O (0.05 in. H_2O)] and referred to in EPA Method 5 of appendix A-3 of this part. For these conditions, the owner or operator may determine the average gas flow rate produced by the power fans (*e.g.,* from vendor-supplied fan curves) to the building vent. The owner or operator may calculate the

average gas velocity at the building vent measurement site using Equation 1 of this section and use this average velocity in determining and maintaining isokinetic sampling rates.

$$V_e = \frac{Q_f}{A_e} \quad \text{Eq. 1:}$$

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Where:

V_e = average building vent velocity (feet per minute);

Q_f = average fan flow rate (cubic feet per minute); and

A_e = area of building vent and measurement location (square feet).

~~(f) To comply with §60.676(d), the owner or operator shall record the measurements as required in §60.676(c) using the monitoring devices in §60.674 (a)(1) and (2) during each particulate matter run and shall determine the averages.~~

(g) For performance tests involving only Method 9 (40 CFR part 60 appendix A-4) testing, the owner or operator may reduce the 30-day advance notification of performance test in §60.7(a)(6) and 60.8(d) to a 7-day advance notification.

~~(h) [Reserved]~~

~~(i) If the initial performance test date for an affected facility falls during a seasonal shut down (as defined in §60.671 of this subpart) of the affected facility, then with approval from the permitting authority, the owner or operator may postpone the initial performance test until no later than 60 calendar days after resuming operation of the affected facility.~~

The highlighted portions of §60.675 will apply as Midas Gold will be required to determine compliance with the PM standards in Tables 2 and 3 using the specified methods, or an acceptable alternate method provided in §60.675.

§60.676 Reporting and recordkeeping.

~~(a) Each owner or operator seeking to comply with §60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment.~~

~~(1) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:~~

~~(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and~~

~~(ii) The rated capacity in tons per hour of the replacement equipment.~~

~~(2) For a screening operation:~~

~~(i) The total surface area of the top screen of the existing screening operation being replaced and~~

~~(ii) The total surface area of the top screen of the replacement screening operation.~~

~~(3) For a conveyor belt:~~

~~(i) The width of the existing belt being replaced and~~

~~(ii) The width of the replacement conveyor belt.~~

~~(4) For a storage bin:~~

~~(i) The rated capacity in megagrams or tons of the existing storage bin being replaced and~~

~~(ii) The rated capacity in megagrams or tons of replacement storage bins.~~

(b)(1) Owners or operators of affected facilities (as defined in §§60.670 and 60.671) for which construction, ~~modification, or reconstruction~~ commenced on or after April 22, 2008, must record each periodic inspection required under §60.674~~(b)~~ or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Administrator upon request.

(2) For each bag leak detection system installed and operated according to §60.674(d), the owner or operator must keep the records specified in paragraphs (b)(2)(i) through (iii) of this section.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and whether the cause of the alarm was alleviated within 3 hours of the alarm.

~~(3) The owner or operator of each affected facility demonstrating compliance according to §60.674(e) by following the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) must maintain records of visible emissions observations required by §63.7132(a)(3) and (b) of 40 CFR part 63, subpart AAAAA.~~

~~(c) During the initial performance test of a wet scrubber, and daily thereafter, the owner or operator shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.~~

~~(d) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss and liquid flow rate decrease by more than 30 percent from the average determined during the most recent performance test.~~

~~(e) The reports required under paragraph (d) of this section shall be postmarked within 30 days following end of the second and fourth calendar quarters.~~

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in §60.672 of this subpart, including reports of opacity observations made using Method 9 (40 CFR part 60, appendix A-4) to demonstrate compliance with §60.672(b), (e) and (f).

~~(g)The owner or operator of any wet material processing operation that processes saturated and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. At the time of such change, this screening operation, bucket elevator, or belt conveyor becomes subject to the applicable opacity limit in §60.672(b) and the emission test requirements of §60.11.~~

(h) The subpart A requirement under §60.7(a)(1) for notification of the date construction or reconstruction commenced is waived for affected facilities under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

~~(2) For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.~~

(j) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected facilities within the State will be relieved of the obligation to comply with the reporting requirements of this section, provided that they comply with requirements established by the State.

(k) Notifications and reports required under this subpart and under subpart A of this part to demonstrate compliance with this subpart need only to be sent to the EPA Region or the State which has been delegated authority according to §60.4(b).

§60.676(a) will not apply as the Stibnite Gold Project affected facilities are not existing.

§60.676(b)(1) will apply as the Stibnite Gold Project nonmetallic mineral processing plant will commence construction after April 22, 2008, and Midas Gold is proposing to use a baghouse to control emissions from the Limestone Ball Mill. Midas Gold will be required to record the periodic inspections required under §60.674(c) unless a bag leak detection system is used as an alternate method per §60.674(d).

§60.676(b)(2) will apply to the Stibnite Gold Project Limestone Ball Mill, if a bag leak detection system is installed and operated as an alternative to the visible emissions inspection requirements in §60.674(c).

§60.676(b)(3) will not apply as the Stibnite Gold Project nonmetallic mineral processing plant is not subject to the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA).

§60.676(c) – (e) will not apply as Midas Gold is not proposing to use a wet scrubber to control emissions from the affected facilities subject to this subpart.

§60.676(f) will apply to the Stibnite Gold Project affected facilities, and therefore Midas Gold will be required to submit written reports of the results of all performance tests conducted.

§60.676(g) will not apply as Midas Gold is not proposing any wet material processing operation.

§60.676(h) will apply to the Stibnite Gold Project affected facilities. Midas Gold will not be required to submit a notification of the date of construction.

§60.676(i)(1) will apply to the Stibnite Gold Project affected facilities; the notification of the actual date of initial startup will be required to be submitted to the Administrator within 15 days after startup.

§60.676(i)(2) will not apply as Midas Gold is not proposing to operate a portable aggregate processing plant.

§60.676(j) and (k) will apply to the Stibnite Gold Project affected facilities and serve as informative.

Table 1 to Subpart OOO of Part 60—Exceptions to Applicability of Subpart A to Subpart OOO

Subpart A reference	Applies to subpart OOO	Explanation
60.4, Address	Yes	Except in §60.4(a) and (b) submittals need not be submitted to both the EPA Region and delegated State authority (§60.676(k)).
60.7, Notification and recordkeeping	Yes	Except in (a)(1) notification of the date construction or reconstruction commenced (§60.676(h)).
		Also, except in (a)(6) performance tests involving only Method 9 (40 CFR part 60, appendix A-4) require a 7-day advance notification instead of 30 days (§60.675(g)).
60.8, Performance tests	Yes	Except in (d) performance tests involving only Method 9 (40 CFR part 60, appendix A-4) require a 7-day advance notification instead of 30 days (§60.675(g)).
60.11, Compliance with standards and maintenance requirements	Yes	Except in (b) under certain conditions (§§60.675(c)), Method 9 (40 CFR part 60, appendix A-4) observation is reduced from 3 hours to 30 minutes for fugitive emissions.
~~60.18, General control device~~	~~No~~	~~Flares will not be used to comply with the emission limits.~~

The exceptions to applicability of Subpart A to Subpart OOO are highlighted in Table 1.

Table 2 to Subpart OOO of Part 60—Stack Emission Limits for Affected Facilities With Capture Systems

For * * *	The owner or operator must meet a PM limit of * * *	And the owner or operator must meet an opacity limit of * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
~~Affected facilities (as defined in §§60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008~~	~~0.05 g/dscm (0.022 gr/dscf)[a]~~	~~7 percent for dry control devices[b]~~	~~An initial performance test according to §60.8 of this part and §60.675 of this subpart; and~~ ~~Monitoring of wet scrubber parameters according to §60.674(a) and §60.676(c), (d), and (e).~~
Affected facilities (as defined in §§60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	0.032 g/dscm (0.014 gr/dscf)[a]	Not applicable ~~(except for individual enclosed storage bins)~~ ~~7 percent for dry control devices on individual enclosed storage bins~~	An initial performance test according to §60.8 of this part and §60.675 of this subpart; and ~~Monitoring of wet scrubber parameters according to §60.674(a) and §60.676(c), (d), and (e); and~~
			Monitoring of baghouses according to §60.674(c), (d), ~~or (e)~~ and §60.676(b).

[a]Exceptions to the PM limit apply for ~~individual enclosed storage bins and~~ other equipment. See §60.672~~(d) through~~ (f).

~~[b]The stack opacity limit and associated opacity testing requirements do not apply for affected facilities using wet scrubbers.~~

Since the Stibnite Gold Project nonmetallic mineral processing plant will commence construction after April 22, 2008, and is proposing to use a baghouse to control emissions from the Limestone Ball Mill, the baghouse stack will be required to meet the PM limit of 0.032 g/dscm. In addition, there will not be an opacity limit for the ball mill baghouse stack. The Stibnite Gold Project nonmetallic mineral processing plant will not have a baghouse controlling emissions on an individual enclosed storage bin, therefore the 7 percent opacity limit will not apply. Midas Gold will be required to demonstrate compliance on the baghouse with an initial performance test, monitoring visible emissions (or operating a bag leak detection system) and maintaining records.

Table 3 to Subpart OOO of Part 60—Fugitive Emission Limits

For * * *	The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, ~~bucket elevators~~, transfer points on belt conveyors, ~~bagging operations~~, storage bins, ~~enclosed truck or railcar loading stations~~ or from any other affected facility (as defined in §§60.670 and 60.671) * * *	The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
~~Affected facilities (as defined in §§60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008~~	~~10 percent opacity~~	~~15 percent opacity~~	~~An initial performance test according to §60.11 of this part and §60.675 of this subpart.~~
Affected facilities (as defined in §§60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	7 percent opacity	12 percent opacity	An initial performance test according to §60.11 of this part and §60.675 of this subpart; ~~and~~ ~~Periodic inspections of water sprays according to §60.674(b) and §60.676(b); and~~
			A repeat performance test according to §60.11 of this part and §60.675 of this subpart within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. ~~Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in §60.674(b) and §60.676(b) are exempt from this 5-year repeat testing requirement.~~

Since the Stibnite Gold Project nonmetallic mineral processing plant will commence construction after April 22, 2008, Midas Gold will be required to meet the fugitive emission limit of 7 percent opacity for all affected facilities subject to this subpart, with the exception of the Limestone Ball Mill (subject to the limits in Table 2), any crusher without a capture system, and any truck dumping. For the Primary Crushing (Source ID LS2) and Secondary Crushing (Source ID LS4) which will not have a capture system, Midas Gold will be required to meet the limit of 12 percent opacity. The Limestone transfer to Primary Crusher Hopper will meet the definition of truck dumping and is exempt from the requirements in Table 3. Midas Gold will be required to demonstrate compliance with the applicable opacity limits with initial performance tests and repeat performance tests every 5 years.

NSPS, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

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Title 40: Protection of Environment
PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES (CONTINUED)

Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

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Source: 71 FR 39172, July 11, 2006, unless otherwise noted.

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What This Subpart Covers

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§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to ~~manufacturers,~~ owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

~~(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:~~

~~(i) 2007 or later, for engines that are not fire pump engines;~~

~~(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.~~

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

~~(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.~~

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

~~(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.~~

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 ~~or 40 CFR part 71~~, provided you are not required to obtain a permit under 40 CFR 70.3(a) ~~or 40~~

~~CFR 71.3(a)~~ for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

~~(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.~~

~~(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

Midas Gold proposes to own and operate at the Stibnite Gold Project, three emergency stationary CI ICEs that will be subject to this subpart per §60.4200(a)(2)(i) as they will commence construction after July 11, 2005, will be manufactured after April 1, 2006, and are not fire pumps. In addition, Midas Gold proposes to own and operate at the Stibnite Gold Project, one stationary fire pump CI ICE, that will be subject to this subpart per §60.4200(a)(2)(ii) as it will commence construction after July 11, 2005, and will be manufactured as a certified NFPA fire pump engine after July 1, 2006.

The three emergency stationary CI ICE will be subject to §60.4200(a)(4) as they will commence construction after July 11, 2005. The three new emergency engines will be installed after December 31, 2008, and will therefore meet the applicable requirements for 2007 model year engines per §60.4208(a).

Because the Stibnite Gold Project is an area source, per §60.4200(c), Midas Gold is not required to obtain a permit under 40 CFR part 70 (i.e., Title V permit) solely due to being subject to this subpart.

Emission Standards for Manufacturers

~~§60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?~~

~~(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.~~

~~(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

~~(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.~~

~~(d) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2007 model year through 2012 non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;~~

~~(2) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(3) Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(e) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(2) Their 2014 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.~~

~~(f) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 1 to 40 CFR 1042.1 identifies 40 CFR part 1042 as being applicable, 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:~~

~~(1) Remote areas of Alaska; and~~

~~(2) Marine offshore installations.~~

~~(g) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power, and displacement of the reconstructed stationary CI ICE.~~

~~(h) Stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with auxiliary emission control devices (AECDs) as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR 89.112 while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011; 81 FR 44219, July 7, 2016]

Midas Gold is not a stationary CI engine manufacturer nor will it own or operate any non-emergency stationary CI ICE; therefore, this section is not applicable.

§60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

~~(1) For engines with a maximum engine power less than 37 KW (50 HP):~~

~~(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and~~

~~(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.~~

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

~~(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.~~

~~(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

~~(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.~~

~~(c) [Reserved]~~

~~(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.~~

~~(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are~~

~~not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;~~

~~(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;~~

~~(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and~~

~~(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(f) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI internal combustion engines identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 2 to 40 CFR 1042.101 identifies Tier 3 standards as being applicable, the requirements applicable to Tier 3 engines in 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:~~

~~(1) Remote areas of Alaska; and~~

~~(2) Marine offshore installations.~~

~~(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to~~ certify ~~reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016]

Midas Gold is not a stationary CI engine manufacturer however, as required by §60.4205(b), the proposed emergency stationary CI ICE must comply with the emission standards in §60.4202. The three emergency engines will each have a maximum power less than 2,237 KW and greater than 37 KW, with a displacement of less than 10 liters per cylinder, and therefore per §60.4202(a)(2), must meet the certification emission standards in 40 CFR 89.112 and 40 CFR 89.113 for new nonroad CI engines beginning in model year 2007.

40 CFR 89.112 (Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards) will apply to the three emergency engines according to model year and maximum engine power.

40 CFR 89.113 (Smoke emission standard) will apply to the three emergency engines.

~~§60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?~~

~~Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the certified emissions life of the engines.~~

[76 FR 37968, June 28, 2011]

Midas Gold is not a stationary CI engine manufacturer; therefore, this section is not applicable.

EMISSION STANDARDS FOR OWNERS AND OPERATORS

~~§60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?~~

~~(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).~~

~~(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.~~

~~(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);~~

~~(ii) $45 n^{-0.2}$ g/KW-hr ($34 n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) For engines installed on or after January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $9.0 \cdot n^{-0.20}$ g/KW-hr ($6.7 \cdot n^{-0.20}$ g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and~~

~~(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).~~

~~(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.~~

~~(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.~~

~~(f) Owners and operators of stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with AECDs as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR 89.112 while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016]

Midas Gold will not own or operate any non-emergency stationary CI ICE; therefore, this section is not applicable.

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

~~(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and~~

~~operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).~~

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

~~(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).~~

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.

~~(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The three emergency stationary CI ICEs will be model year 2007 or later with a displacement of less than 10 liters per cylinder and subject to §60.4205(b). The engines must comply with the emission standards for new nonroad CI engines in §60.4202(a)(2).

The stationary fire pump CI ICE will be model year model year 2009 or later with a displacement of less than 10 liters per cylinder and subject to §60.4205(c). The fire pump engine must comply with the emission standards in table 4 to this subpart, for all pollutants.

If Midas Gold chooses not to install and operate any stationary CI ICE according to the manufacturer's emission-related written instructions, according to §60.4211(g), performance testing will be required to demonstrate compliance. In this case, §60.4202(e) will apply to the proposed engines.

§60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in ~~§§60.4204 and~~ 60.4205 over the entire life of the engine.

[76 FR 37969, June 28, 2011]

As required by §60.4206, Midas Gold must operate and maintain the three emergency engines and one fire pump engine so they achieve the standards in §60.4205 for the entire life of the each engine.

Fuel Requirements for Owners and Operators

§60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) ~~Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).~~

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, ~~except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.~~

(c) ~~[Reserved]~~

(d) ~~Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).~~

(e) ~~Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

The three emergency engines and one fire pump engine will be subject to §60.4207(b), and Midas Gold must use diesel fuel that meets the sulfur and cetane index or aromatic content requirements of 40 CFR 80.510(b). Per 40 CFR 80.510(b)(1)(i), the fuel sulfur content cannot exceed 15 ppm.

Other Requirements for Owners and Operators

§60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

~~(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.~~

~~(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.~~

~~(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.~~

~~(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.~~

~~(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.~~

(g) ~~After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines~~.

(h) In addition to the requirements specified in §§~~60.4201,~~ 60.4202, ~~60.4204,~~ and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE ~~that have been modified, reconstructed, and do not apply to engines~~ that were removed from one existing location and reinstalled at a new location.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The three emergency engines will be installed after December 31, 2008, and must therefore meet the applicable requirements for 2007 model year engines per §60.4208(a).

§60.4208(b)-(g) will not apply to Midas Gold given the proposed stationary CI ICE.

In accordance with §60.4208(h), Midas Gold must not import stationary CI ICE that do not meet the requirement of §60.4208(a). However, per §60.4208(i), the deadlines for importing and installing CI ICE do not apply to engines that are moved from one existing location to another.

§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

~~(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The three emergency engines and one fire pump engine will be required to install a non-resettable hour meter prior to startup of the engines per §60.4209(a).

Because none of the proposed CI ICE are subject to the emission standards for non-emergency engines in §60.4204, §60.4209(b) will not apply.

Compliance Requirements

~~**§60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?**~~

~~(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §60.4201(a) through (c) and §60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.~~

~~(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §60.4201(d) and (e) and §60.4202(e) and (f) using the certification procedures required in 40 CFR part 94, subpart C, or 40 CFR part 1042, subpart C, as applicable, and must test their engines as specified in 40 CFR part 94 or 1042, as applicable.~~

~~(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89, 40 CFR part 94 or 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.~~

~~(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.~~

~~(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:~~

~~(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.~~

~~(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.~~

~~(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.~~

~~(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.~~

~~(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate.~~

~~(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate, but the words "stationary" must be included instead of "nonroad" or "marine" on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.~~

~~(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.~~

~~(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR parts 89, 94, 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.~~

~~(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words "and stationary" after the word "nonroad" or "marine," as appropriate, to the label.~~

~~(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.~~

~~(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as "Fire Pump Applications Only".~~

~~(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §60.4201 or §60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.~~

~~(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.~~

~~(j) Stationary CI ICE manufacturers may equip their stationary CI internal combustion engines certified to the emission standards in 40 CFR part 1039 with AECDs for qualified emergency situations according to the requirements of 40 CFR 1039.665. Manufacturers of stationary CI ICE equipped with AECDs as allowed by 40 CFR 1039.665 must meet all of the~~

~~requirements in 40 CFR 1039.665 that apply to manufacturers. Manufacturers must document that the engine complies with the Tier 1 standard in 40 CFR 89.112 when the AECD is activated. Manufacturers must provide any relevant testing, engineering analysis, or other information in sufficient detail to support such statement when applying for certification (including amending an existing certificate) of an engine equipped with an AECD as allowed by 40 CFR 1039.665.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 81 FR 44219, July 7, 2016]

Midas Gold is not a stationary CI engine manufacturer; therefore, this section is not applicable.

§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, ~~94[Marine Engines]~~ and/or 1068, as they apply to you.

~~(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.~~

~~(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.~~

~~(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.~~

~~(3) Keeping records of engine manufacturer data indicating compliance with the standards.~~

~~(4) Keeping records of control device vendor data indicating compliance with the standards.~~

~~(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.~~

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in ~~§60.4204(b) or~~ §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in ~~§60.4204(b), or~~ §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

~~(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.~~

~~(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.~~

~~(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.~~

~~(i) Identification of the specific parameters you propose to monitor continuously;~~

~~(ii) A discussion of the relationship between these parameters and NO_x and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_x and PM emissions;~~

~~(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits~~

~~on these parameters in the operating limitations;~~

~~(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and~~

(v) ~~A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these~~ parameters.

~~(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.~~

~~(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.~~

~~(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.~~

~~(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.~~

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non- emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

~~(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.~~

~~(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.~~

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. ~~Except as provided in paragraph (f)(3)(i) of this section,~~ the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

~~(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:~~

~~(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;~~

~~(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.~~

~~(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state,~~

~~public utility commission or local standards or guidelines.~~

~~(D) The power is provided only to the facility itself or to support the local transmission and distribution system.~~

~~(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.~~

~~(ii) [Reserved]~~

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) ~~If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action~~.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

~~(h) The requirements for operators and prohibited acts specified in 40 CFR 1039.665 apply to owners or operators of stationary CI ICE equipped with AECDs for qualified emergency situations as allowed by 40 CFR 1039.665.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

§60.4211(a) will be applicable. Except as permitted in §60.4211(g), Midas Gold must operate and maintain the three emergency engines and one fire pump engine according to the manufacturer's emission-related written instructions, only change emission-related settings that are permitted by the manufacturer and meet the requirements of 40 CFR 89 and 1068, as they apply.

§60.4211(b) will not apply because Midas Gold will not own or operate any pre-2007 model year stationary CI ICE or a CI fire pump engine that is manufactured prior to 2009.

§60.4211(c) will be applicable. Midas Gold must purchase emergency stationary CI ICE certified to the emission standards in §60.4205(b) and fire pump CI ICE certified to the emission standards in §60.4205(c). Except as permitted in §60.4211(g), the engines must be installed and configured according to the manufacturer's emission-related specifications.

§60.4211(d) will not apply because Midas Gold will not own or operate any stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder.

§60.4211(e) will not apply because Midas Gold will not own or operate any modified or reconstructed stationary CI ICE.

§60.4211(f) will be applicable. Midas Gold will not be allowed to operate the three emergency engines or fire pump engine for more than 50 hours per year in non-emergency situations, and no more than 100 hours per year for maintenance checks and readiness testing. Any operation for non-emergency situations is counted towards the 100 hours per year allowed for maintenance and testing. There is no time limit on the use of the CI ICE in emergency situations. Midas Gold will not operate any stationary CI ICE for emergency demand response nor as part of a financial arrangement with another entity, and therefore §60.4211(f)(2)(ii) and (iii) and §60.4211(f)(3)(i) will not apply.

If Midas Gold does not install, configure, operate and maintain the stationary CI ICE according to the manufacturer's emission-related

instructions, §60.4211(g)(2) will be applicable to the fire pump engine and §60.4211(g)(3) will be applicable the three emergency engines. Midas Gold will be required to keep a maintenance plan and records, and maintain and operate the CI ICE in a manner consistent with good air pollution control practices. In addition, they will be required to conduct an initial performance test. Midas Gold will also be required to conduct subsequent performance tests on the three emergency engines every 8,760 hours of engine operation or every 3 years.

It is proposed that the three emergency engines and one fire pump engine will not be equipped with AECDs, therefore §60.4211(h) will not apply.

Testing Requirements for Owners and Operators

§60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, ~~and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.~~

~~(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039[Non-Road CI Engines] must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.~~

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or ~~40 CFR 94.8 [Marine Engines], as applicable~~, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 ~~or 40 CFR 94.8, as applicable,~~ determined from the following equation:

NTE requirement for each pollutant = (1.25) x (STD) (Eq. 1)

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 ~~or 40 CFR 94.8, as applicable~~.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 ~~or 40 CFR 94.8~~ may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

~~(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.~~

~~Where:~~

~~STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).~~

~~Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.~~

~~(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

If Midas Gold must demonstrate compliance per §60.4211(g)(2) or (g)(3), §60.4212(a), and (c) will apply to the performance testing to demonstrate compliance with the applicable emission standards.

§60.4212(b), (d) and (e) will not apply to the proposed Midas Gold stationary CI ICE.

~~**§60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?**~~

~~Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.~~

~~(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable)~~

~~load.~~

~~(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).~~

~~(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must last at least 1 hour.~~

~~(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.~~

~~(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:~~

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad \text{(Eq. 2)}$$

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~~Where:~~

~~C_i = concentration of NO_X or PM at the control device inlet,~~

~~C_o = concentration of NO_X or PM at the control device outlet, and~~

~~R = percent reduction of NO_X or PM emissions.~~

~~(2) You must normalize the NO_X or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O_2) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO_2) using the procedures described in paragraph (d)(3) of this section.~~

$$C_{adj} = C_d \frac{5.9}{20.9 - \%O_2} \qquad \text{(Eq. 3)}$$

~~View or download PDF~~

~~Where:~~

~~C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.~~

~~C_d = Measured concentration of NO_X or PM, uncorrected.~~

~~5.9 = 20.9 percent O_2–15 percent O_2, the defined O_2 correction value, percent.~~

~~$\%O_2$ = Measured O_2 concentration, dry basis, percent.~~

~~(3) If pollutant concentrations are to be corrected to 15 percent O_2 and CO_2 concentration is measured in lieu of O_2 concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.~~

~~(i) Calculate the fuel specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:~~

$$F_o = \frac{0.209 F_d}{F_c} \qquad \text{(Eq. 4)}$$

~~View or download PDF~~

~~Where:~~

~~F_o = Fuel factor based on the ratio of O_2 volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.~~

~~0.209 = Fraction of air that is O_2, percent/100.~~

~~F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).~~

~~F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).~~

~~(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:~~

$$X_{CO_2} = \frac{5.9}{F_o} \qquad \text{(Eq. 5)}$$

~~View or download PDF~~

~~Where:~~

~~X_{CO2} = CO_2 correction factor, percent.~~

~~5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2 correction value, percent.~~

~~(iii) Calculate the NO_X and PM gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:~~

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \qquad \text{(Eq. 6)}$$

~~View or download PDF~~

~~Where:~~

~~C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.~~

~~C_d = Measured concentration of NO_X or PM, uncorrected.~~

~~$\%CO_2$ = Measured CO_2 concentration, dry basis, percent.~~

~~(e) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 7 of this section:~~

$$ER = \frac{C_{adj} \times 1.912 \times 10^{-3} \times Q \times T}{\text{KW-hour}} \qquad \text{(Eq. 7)}$$

~~View or download PDF~~

~~Where:~~

~~ER = Emission rate in grams per KW-hour.~~

~~C_d = Measured NO_X concentration in ppm.~~

~~1.912×10^{-3} = Conversion constant for ppm NO_X to grams per standard cubic meter at 25 degrees Celsius.~~

~~Q = Stack gas volumetric flow rate, in standard cubic meter per hour.~~

~~T = Time of test run, in hours.~~

~~KW-hour = Brake work of the engine, in KW-hour.~~

~~(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:~~

$$ER = \frac{C_{adj} \times Q \times T}{\text{KW-hour}} \qquad \text{(Eq. 8)}$$

~~View or download PDF~~

~~Where:~~

~~ER = Emission rate in grams per KW-hour.~~

~~C_{adj} = Calculated PM concentration in grams per standard cubic meter.~~

~~Q = Stack gas volumetric flow rate, in standard cubic meter per hour.~~

~~T = Time of test run, in hours.~~

~~KW-hour = Energy output of the engine, in KW.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

Midas Gold is not proposing to own or operate any stationary CI ICEs with a displacement of greater than or equal to 30 liters per cylinder; therefore, this section is not applicable.

Notification, Reports, and Records for Owners and Operators

§60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

~~(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.~~

~~(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.~~

~~(i) Name and address of the owner or operator;~~

~~(ii) The address of the affected source;~~

~~(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;~~

~~(iv) Emission control equipment; and~~

~~(v) Fuel used.~~

~~(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.~~

~~(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.~~

~~(ii) Maintenance conducted on the engine.~~

~~(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.~~

~~(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.~~

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

~~(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.~~

~~(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section. The report must contain the following information:~~

~~(i) Company name and address where the engine is located.~~

~~(ii) Date of the report and beginning and ending dates of the reporting period.~~

~~(iii) Engine site rating and model year.~~

~~(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.~~

~~(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.~~

~~(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.~~

~~(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.~~

~~(e) Owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665(e).~~

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

§60.4214(a) will not apply to the proposed Midas Gold stationary CI ICE.

§60.4214(b) will be applicable. Midas Gold will not be required to submit an initial notification for the three emergency engines and one fire pump engine. Because the emergency engines will not meet the standards applicable to non-emergency engines, Midas Gold must keep records of the time of operation in emergency and non-emergency service and reason for operation.

It is proposed that the three emergency engines and one fire pump engine will not be equipped with diesel particulate filters, therefore §60.4214(c) will not apply.

Midas Gold will not operate any stationary CI ICE for emergency demand response per §60.4211(f)(2)(ii) and (iii) nor as part of a financial arrangement with another entity per §60.4211(f)(3)(i), and therefore §60.4214(d) will not apply.

It is proposed that the three emergency engines and one fire pump engine will not be equipped with AECDs, therefore §60.4214(e) will not apply.

~~Special Requirements~~

~~§60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?~~

~~(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§60.4202 and 60.4205.~~

~~(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.~~

~~(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;$44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(ii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

Midas Gold is not proposing to use any engines in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands; therefore, this section is not applicable.

~~§60.4216 What requirements must I meet for engines used in Alaska?~~

~~(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.~~

~~(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in remote areas of Alaska may meet the requirements of this subpart by~~

~~manufacturing and installing engines meeting the requirements of 40 CFR parts 94 or 1042, as appropriate, rather than the otherwise applicable requirements of 40 CFR parts 89 and 1039, as indicated in §§60.4201(f) and 60.4202(g).~~

~~(c) Manufacturers, owners and operators of stationary CI ICE that are located in remote areas of Alaska may choose to meet the applicable emission standards for emergency engines in §§60.4202 and 60.4205, and not those for non-emergency engines in §§60.4201 and 60.4204, except that for 2014 model year and later non-emergency CI ICE, the owner or operator of any such engine that was not certified as meeting Tier 4 PM standards, must meet the applicable requirements for PM in §§60.4201 and 60.4204 or install a PM emission control device that achieves PM emission reductions of 85 percent, or 60 percent for engines with a displacement of greater than or equal to 30 liters per cylinder, compared to engine-out emissions.~~

~~(d) The provisions of §60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in remote areas of Alaska.~~

~~(e) The provisions of §60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.~~

~~(f) The provisions of this section and §60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in remote areas of Alaska from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.~~

[76 FR 37971, June 28, 2011, as amended at 81 FR 44219, July 7, 2016]

Midas Gold is not proposing to use any engines in Alaska; therefore, this section is not applicable.

~~§60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?~~

~~Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4204 or §60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.~~

[76 FR 37972, June 28, 2011]

Midas Gold is not proposing to own or operate any engines using special fuels; therefore, this section is not applicable.

General Provisions

§60.4218 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

See Table 8 of this subpart for the applicable General Provisions to this subpart.

Definitions

§60.4219 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

~~*Alaska Railbelt Grid* means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.~~

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). ~~The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).~~

~~*Combustion turbine* means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion~~

~~turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.~~

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

~~(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.~~

~~(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.~~

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

~~*Diesel particulate filter* means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.~~

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4211(f).

~~(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i).~~

Engine manufacturer means the manufacturer of the engine. See the definition of “manufacturer” in this section.

Fire pump engine means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

Model year means the calendar year in which an engine is manufactured (see “date of manufacture”), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see “date of manufacture”), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured

(see “date of manufacture”).

~~*Other internal combustion engine* means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.~~

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

~~*Remote areas of Alaska* means areas of Alaska that meet either paragraph (1) or (2) of this definition.~~

~~(1) Areas of Alaska that are not accessible by the Federal Aid Highway System (FAHS).~~

~~(2) Areas of Alaska that meet all of the following criteria:~~

~~(i) The only connection to the FAHS is through the Alaska Marine Highway System, or the stationary CI ICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.~~

~~(ii) At least 10 percent of the power generated by the stationary CI ICE on an annual basis is used for residential purposes.~~

~~(iii) The generating capacity of the source is less than 12 megawatts, or the stationary CI ICE is used exclusively for backup power for renewable energy.~~

~~*Rotary internal combustion engine* means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.~~

~~*Spark ignition* means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.~~

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

The definitions applicable to Midas Gold have been highlighted in §60.4219.

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

[As stated in §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO_x	HC	NO_x	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 1 will not apply because the proposed stationary CI ICEs to be operated at the Stibnite Gold Project are not Pre-2007, or model year 2007-2010 greater than 2,237 KW (3,000 HP).

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

[As stated in §60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	NO_x + NMHC	CO	PM
KW<8 (HP<11)	2008 +	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008 +	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008 +	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 2 will not apply because the stationary CI ICEs at the Stibnite Gold Project are proposed to be greater than 37 KW.

Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines

As stated in §60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to §60.4202(d)[1]
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

[1]Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

Table 3 will not apply as Midas Gold is not a stationary CI ICE manufacturer.

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§~~60.4202(d) and~~ 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO_X	CO	PM
~~KW<8 (HP<11)~~	~~2010 and earlier~~	~~10.5 (7.8)~~	~~8.0 (6.0)~~	~~1.0 (0.75)~~
	~~2011 +~~	~~7.5 (5.6)~~		~~0.40 (0.30)~~
~~8≤KW<19 (11≤HP<25)~~	~~2010 and earlier~~	~~9.5 (7.1)~~	~~6.6 (4.9)~~	~~0.80 (0.60)~~
	~~2011 +~~	~~7.5 (5.6)~~		~~0.40 (0.30)~~
~~19≤KW<37 (25≤HP<50)~~	~~2010 and earlier~~	~~9.5 (7.1)~~	~~5.5 (4.1)~~	~~0.80 (0.60)~~
	~~2011 +~~	~~7.5 (5.6)~~		~~0.30 (0.22)~~
~~37≤KW<56 (50≤HP<75)~~	~~2010 and earlier~~	~~10.5 (7.8)~~	~~5.0 (3.7)~~	~~0.80 (0.60)~~
	~~2011 +[1]~~	~~4.7 (3.5)~~		~~0.40 (0.30)~~
~~56≤KW<75 (75≤HP<100)~~	~~2010 and earlier~~	~~10.5 (7.8)~~	~~5.0 (3.7)~~	~~0.80 (0.60)~~
	~~2011 +[1]~~	~~4.7 (3.5)~~		~~0.40 (0.30)~~
~~75≤KW<130 (100≤HP<175)~~	~~2009 and earlier~~	~~10.5 (7.8)~~	~~5.0 (3.7)~~	~~0.80 (0.60)~~
	~~2010 +[2]~~	~~4.0 (3.0)~~		~~0.30 (0.22)~~
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 +[3]	4.0 (3.0)		0.20 (0.15)
~~225≤KW<450 (300≤HP<600)~~	~~2008 and earlier~~	~~10.5 (7.8)~~	~~3.5 (2.6)~~	~~0.54 (0.40)~~
	~~2009 +[3]~~	~~4.0 (3.0)~~		~~0.20 (0.15)~~
~~450≤KW≤560 (600≤HP≤750)~~	~~2008 and earlier~~	~~10.5 (7.8)~~	~~3.5 (2.6)~~	~~0.54 (0.40)~~
	~~2009 +~~	~~4.0 (3.0)~~		~~0.20 (0.15)~~
~~KW>560 (HP>750)~~	~~2007 and earlier~~	~~10.5 (7.8)~~	~~3.5 (2.6)~~	~~0.54 (0.40)~~
	~~2008 +~~	~~6.4 (4.8)~~		~~0.20 (0.15)~~

~~[1]For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.~~

~~[2]For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines~~.

~~[3]In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.~~

Table 4 will apply to the new stationary fire pump CI ICE to be installed at the Stibnite Gold Project per §60.4205(c).

Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines

[You must comply with ~~the labeling requirements in §60.4210(f) and~~ the recordkeeping requirements in §60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	Starting model year
~~19≤KW<56 (25≤HP<75)~~	~~2013~~
~~56≤KW<130 (75≤HP<175)~~	~~2012~~
KW≥130 (HP≥175)	2011

Table 5 will apply to the emergency engines if they do not meet the standards applicable to non-emergency engines. The labeling requirements in §60.4210(f) will apply to the manufacturer and the recordkeeping requirements in §60.4214(b) will apply to Midas Gold.

~~**Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines**~~

~~[As stated in §60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]~~

~~Mode No.~~	~~Engine speed[1]~~	~~Torque (percent)[2]~~	~~Weighting factors~~
~~1~~	~~Rated~~	~~100~~	~~0.30~~
~~2~~	~~Rated~~	~~75~~	~~0.50~~
~~3~~	~~Rated~~	~~50~~	~~0.20~~

~~[1]Engine speed: ±2 percent of point.~~

~~[2]Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.~~

Table 6 will not apply because Midas Gold is not a stationary CI engine manufacturer.

~~Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder~~

~~As stated in §60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:~~

~~Each~~	~~Complying with the requirement to~~	~~You must~~	~~Using~~	~~According to the following requirements~~
~~1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder~~	~~a. Reduce NO_x emissions by 90 percent or more;~~	~~i. Select the sampling port location and number/location of traverse points at the inlet and outlet of the control device;~~		~~(a) For NO_x, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.~~
		~~ii. Measure O_2 at the inlet and outlet of the control device;~~	~~(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~	~~(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_x concentration.~~
		~~iii. If necessary, measure moisture content at the inlet and outlet of the control device; and~~	~~(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~	~~(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_x concentration.~~
		~~iv. Measure NO_x at the inlet and outlet of the control device.~~	~~(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~	~~(d) NO_x concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~
	~~b. Limit the concentration of NO_x in the stationary CI internal combustion engine exhaust.~~	~~i. Select the sampling port location and number/location of traverse points at the exhaust of the stationary internal combustion engine;~~		~~(a) For NO_x, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.~~
		~~ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;~~	~~(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~	~~(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_x concentration.~~
		~~iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and~~	~~(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~	~~(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_x concentration.~~
		~~iv. Measure NO_x at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.~~	~~(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~	~~(d) NO_x concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~

	~~c. Reduce PM emissions by 60 percent or more~~	~~i. Select the sampling port location and the number of traverse points;~~	~~(1) Method 1 or 1A of 40 CFR part 60, appendix A-1~~	~~(a) Sampling sites must be located at the inlet and outlet of the control device.~~
		~~ii. Measure O_2 at the inlet and outlet of the control device;~~	~~(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~	~~(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.~~
		~~iii. If necessary, measure moisture content at the inlet and outlet of the control device; and~~	~~(3) Method 4 of 40 CFR part 60, appendix A-3~~	~~(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.~~
		~~iv. Measure PM at the inlet and outlet of the control device.~~	~~(4) Method 5 of 40 CFR part 60, appendix A-3~~	~~(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~
	~~d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust~~	~~i. Select the sampling port location and the number of traverse points;~~	~~(1) Method 1 or 1A of 40 CFR part 60, appendix A-1~~	~~(a) If using a control device, the sampling site must be located at the outlet of the control device.~~
		~~ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;~~	~~(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~	~~(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.~~
		~~iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and~~	~~(3) Method 4 of 40 CFR part 60, appendix A-3~~	~~(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.~~
		~~iv. Measure PM at the exhaust of the stationary internal combustion engine.~~	~~(4) Method 5 of 40 CFR part 60, appendix A-3~~	~~(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~

[79 FR 11251, Feb. 27, 2014]

Table 7 will not apply because Midas Gold will not own or operate any stationary CI ICE with a displacement of ≥30 liters per cylinder.

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4219.
§60.3	Units and abbreviations	Yes	
§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4214(a).
§60.8	Performance tests	Yes	Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart IIII.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	Yes	Except that §60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder.
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

The applicable General Provisions are highlighted in Table 8.

NESHAP, Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of January 18, 2019

Title 40 → Chapter I → Subchapter C → Part 63 → Subpart CCCCCC

Title 40: Protection of Environment
PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES (CONTINUED)

Subpart CCCCCC—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

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SOURCE: 73 FR 1945, Jan. 10, 2008, unless otherwise noted.

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WHAT THIS SUBPART COVERS

§63.11110 What is the purpose of this subpart?

This subpart establishes national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF). This subpart also establishes requirements to demonstrate compliance with the emission limitations and management practices.

§63.11111 Am I subject to the requirements in this subpart?

(a) The affected source to which this subpart applies is each GDF that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

~~(b) If your GDF has a monthly throughput of less than 10,000 gallons of gasoline, you must comply with the requirements in §63.11116.~~

(c) If your GDF has a monthly throughput of 10,000 gallons of gasoline or more, you must comply with the requirements in §63.11117.

~~(d) If your GDF has a monthly throughput of 100,000 gallons of gasoline or more, you must comply with the requirements in §63.11118.~~

(e) An affected source shall, upon request by the Administrator, demonstrate that their monthly throughput is less than ~~the 10,000-gallon or~~ the 100,000-gallon threshold level, as applicable. For new ~~or reconstructed~~ affected sources, as specified in §63.11112(b) ~~and (c),~~ recordkeeping to document monthly throughput must begin upon startup of the affected source. ~~For existing sources, as specified in §63.11112(d), recordkeeping to document monthly throughput must begin on January 10, 2008. For existing sources that are subject to this subpart only because they load gasoline into fuel tanks other than those in motor vehicles, as defined in §63.11132, recordkeeping to document monthly throughput must begin on January 24, 2011.~~ Records required under this paragraph shall be kept for a period of 5 years.

(f) If you are an owner or operator of affected sources, as defined in paragraph (a) of this section, you are not required to obtain a permit under 40 CFR part 70 ~~or 40 CFR part 71~~ as a result of being subject to this subpart. However, you must still apply for and obtain a permit under 40 CFR part 70 ~~or 40 CFR part 71~~ if you meet one or more of the applicability criteria found in 40 CFR 70.3(a) and (b) ~~or 40 CFR 71.3(a) and (b).~~

~~(g) The loading of aviation gasoline into storage tanks at airports, and the subsequent transfer of aviation gasoline within the airport, is not subject to this subpart.~~

(h) Monthly throughput is the total volume of gasoline loaded into, or dispensed from, all the gasoline storage tanks located at a single affected GDF. If an area source has two or more GDF at separate locations within the area source, each GDF is treated as a separate affected source.

(i) If your affected source's throughput ever exceeds an applicable throughput threshold, the affected source will remain subject to the requirements for sources above the threshold, even if the affected source throughput later falls below the applicable throughput threshold.

(j) The dispensing of gasoline from a fixed gasoline storage tank at a GDF into a portable gasoline tank for the on-site delivery and subsequent dispensing of the gasoline into the fuel tank of a motor vehicle or other gasoline-fueled engine or equipment used within the area source is only subject to §63.11116 of this subpart.

(k) For any affected source subject to the provisions of this subpart and another Federal rule, you may elect to comply only with the more stringent provisions of the applicable subparts. You must consider all provisions of the rules, including monitoring, recordkeeping, and reporting. You must identify the affected source and provisions with which you will comply in your Notification of Compliance Status required under §63.11124. You also must demonstrate in your Notification of Compliance Status that each provision with which you will comply is at least as stringent as the otherwise applicable requirements in this subpart. You are responsible for making accurate determinations concerning the more stringent provisions, and noncompliance with this rule is not excused if it is later determined that your determination was in error, and, as a result, you are violating this subpart. Compliance with this rule is your responsibility and the Notification of Compliance Status does not alter or affect that responsibility.

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4181, Jan. 24, 2011]

Per §63.11111(a), Midas Gold will be subject to this subpart as they are proposing to operate two Gasoline Dispensing Facilities (GDF) located at the Stibnite Gold Project, which will be an area source. Each GDF will be an affected source subject to this subpart. It is proposed that the Stibnite Gold Project will have two GDFs, each with a monthly throughput of greater than 10,000 gallons of gasoline but less than 100,000 gallons of gasoline and must comply with the requirements in §63.11117 per §63.11111(c). Based on the monthly throughput, §63.11111(b) and (d) will not apply. Midas Gold will be required to demonstrate that the monthly throughput of each GDF is less than the 100,000-gallon threshold level by recording monthly throughput upon startup and keeping records for a period of 5 years per §63.11111(e). Per §63.11111(f) Midas Gold will not be required to obtain a permit under 40 CFR part 70 (i.e., Title V permit) as a result of being subject to this subpart.

§63.11111(g) will not apply as Midas Gold will not load or transfer aviation gasoline.

§63.11111(h) - (k) will apply to Midas Gold as informative requirements.

§63.11112 What parts of my affected source does this subpart cover?

(a) The emission sources to which this subpart applies are gasoline storage tanks and associated equipment components in vapor or liquid gasoline service at new, ~~reconstructed, or existing~~ GDF that meet the criteria specified in §63.11111. Pressure/Vacuum vents on gasoline storage tanks and the equipment necessary to unload product from cargo tanks into the storage tanks at GDF are covered emission sources. The equipment used for the refueling of motor vehicles is not covered by this subpart.

(b) An affected source is a new affected source if you commenced construction on the affected source after November 9, 2006, and you meet the applicability criteria in §63.11111 at the time you commenced operation.

~~(c) An affected source is reconstructed if you meet the criteria for reconstruction as defined in §63.2.~~

~~(d) An affected source is an existing affected source if it is not new or reconstructed.~~

§63.11112(a) will apply to the two Stibnite Gold Project affected sources.
§63.11112(b) will apply to the two Stibnite Gold Project affected sources as construction will commence after November 9, 2006.
§63.11112(c) will not apply because the two Stibnite Gold Project affected sources will not be reconstructed.
§63.11112(d) will not apply because the two Stibnite Gold Project affected sources are not existing.

§63.11113 When do I have to comply with this subpart?

(a) If you have a new ~~or reconstructed~~ affected source, you must comply with this subpart according to paragraphs (a)~~(1) and~~ (2) of this section, ~~except as specified in paragraph (d) of this section.~~

~~(1) If you start up your affected source before January 10, 2008, you must comply with the standards in this subpart no later than January 10, 2008.~~

(2) If you start up your affected source after January 10, 2008, you must comply with the standards in this subpart upon startup of your affected source.

~~(b) If you have an existing affected source, you must comply with the standards in this subpart no later than January 10, 2011.~~

~~(c) If you have an existing affected source that becomes subject to the control requirements in this subpart because of an increase in the monthly throughput, as specified in §63.11111(c) or §63.11111(d), you must comply with the standards in this subpart no later than 3 years after the affected source becomes subject to the control requirements in this subpart.~~

~~(d) If you have a new or reconstructed affected source and you are complying with Table 1 to this subpart, you must comply according to paragraphs (d)(1) and (2) of this section.~~

~~(1) If you start up your affected source from November 9, 2006 to September 23, 2008, you must comply no later than September 23, 2008.~~

~~(2) If you start up your affected source after September 23, 2008, you must comply upon startup of your affected source.~~

~~(e) The initial compliance demonstration test required under §63.11120(a)(1) and (2) must be conducted as specified in paragraphs (e)(1) and (2) of this section.~~

~~(1) If you have a new or reconstructed affected source, you must conduct the initial compliance test upon installation of the complete vapor balance system.~~

~~(2) If you have an existing affected source, you must conduct the initial compliance test as specified in paragraphs (e)(2)(i) or (e)(2)(ii) of this section.~~

~~(i) For vapor balance systems installed on or before December 15, 2009, you must test no later than 180 days after the applicable compliance date specified in paragraphs (b) or (c) of this section.~~

~~(ii) For vapor balance systems installed after December 15, 2009, you must test upon installation of the complete vapor balance system.~~

~~(f) If your GDF is subject to the control requirements in this subpart only because it loads gasoline into fuel tanks other than those in motor vehicles, as defined in §63.11132, you must comply with the standards in this subpart as specified in paragraphs (f)(1) or (f)(2) of this section.~~

~~(1) If your GDF is an existing facility, you must comply by January 24, 2014.~~

~~(2) If your GDF is a new or reconstructed facility, you must comply by the dates specified in paragraphs (f)(2)(i) and (ii) of this section.~~

~~(i) If you start up your GDF after December 15, 2009, but before January 24, 2011, you must comply no later than January 24, 2011.~~

~~(ii) If you start up your GDF after January 24, 2011, you must comply upon startup of your GDF.~~

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 35944, June 25, 2008; 76 FR 4181, Jan. 24, 2011]

§63.11113(a)(2) will apply because the two Stibnite Gold Project GDFs will start up after January 10, 2008, and Midas Gold will be required to comply with the standards in this subpart upon startup of the affected sources.

§63.11113(b) and (c) will not apply because the two Stibnite Gold Project GDFs are not existing.

§63.11113(d) will not apply because the two Stibnite Gold Project GDFs are not proposing to have a monthly throughput of 100,000 gallons of gasoline or more and are therefore not subject to the requirements in Table 1.

§63.11113(e) will not apply to the two Stibnite Gold Project GDFs, as they will not be required to install a vapor balance system as they are not proposing to have a monthly throughput of 100,000 gallons of gasoline or more.

§63.11113(f) will not apply because the two Stibnite Gold Project GDFs will load gasoline into fuel tanks in motor vehicles.

Emission Limitations and Management Practices

§63.11115 What are my general duties to minimize emissions?

Each owner or operator of an affected source under this subpart must comply with the requirements of paragraphs (a) and (b) of this section.

(a) You must, at all times, operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

(b) You must keep applicable records and submit reports as specified in §63.11125(d) and §63.11126(b).

[76 FR 4182, Jan. 24, 2011]

§63.11115(a) and (b) will apply to Midas Gold. Midas Gold will be required to operate and maintain each GDF in a manner consistent with safety and good air pollution control practices to minimize emissions. They will also be required to keep applicable records and submit specified reports for each GDF.

~~§63.11116 Requirements for facilities with monthly throughput of less than 10,000 gallons of gasoline.~~

(a) You must not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

(1) Minimize gasoline spills;

(2) Clean up spills as expeditiously as practicable;

(3) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

(4) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

~~(b) You are not required to submit notifications or reports as specified in §63.11125, §63.11126, or subpart A of this part, but you must have records available within 24 hours of a request by the Administrator to document your gasoline throughput.~~

~~(c) You must comply with the requirements of this subpart by the applicable dates specified in §63.11113.~~

~~(d) Portable gasoline containers that meet the requirements of 40 CFR part 59, subpart F, are considered acceptable for compliance with paragraph (a)(3) of this section.~~

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4182, Jan. 24, 2011]

§63.11116(a) will apply to the two Stibnite Gold Project GDFs per §63.11117(a) below.

§63.11117 Requirements for facilities with monthly throughput of 10,000 gallons of gasoline or more.

(a) You must comply with the requirements in section §63.11116(a).

(b) ~~Except as specified in paragraph (c) of this section~~, you must only load gasoline into storage tanks at your facility by utilizing submerged filling, as defined in §63.11132, and as specified in paragraphs ~~(b)(1),~~ (b)(2), or (b)(3) of this section. The applicable distances in paragraphs (b)(1) and (2) shall be measured from the point in the opening of the submerged fill pipe that is the greatest distance from the bottom of the storage tank.

~~(1) Submerged fill pipes installed on or before November 9, 2006, must be no more than 12 inches from the bottom of the tank.~~

(2) Submerged fill pipes installed after November 9, 2006, must be no more than 6 inches from the bottom of the tank.

(3) Submerged fill pipes not meeting the specifications of paragraphs ~~(b)(1) or~~ (b)(2) of this section are allowed if the owner or operator can demonstrate that the liquid level in the tank is always above the entire opening of the fill pipe. Documentation providing such demonstration must be made available for inspection by the Administrator's delegated representative during the course of a site visit.

~~(c) Gasoline storage tanks with a capacity of less than 250 gallons are not required to comply with the submerged fill requirements in paragraph (b) of this section, but must comply only with all of the requirements in §63.11116.~~

(d) You must have records available within 24 hours of a request by the Administrator to document your gasoline throughput.

(e) You must submit the applicable notifications as required under §63.11124(a).

(f) You must comply with the requirements of this subpart by the applicable dates contained in §63.11113.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008; 76 FR 4182, Jan. 24, 2011]

The highlighted portions of §63.11117 will apply to the two Stibnite Gold Project GDFs as they are proposing to have a monthly throughput of 10,000 gallons or more.

~~**§63.11118 Requirements for facilities with monthly throughput of 100,000 gallons of gasoline or more.**~~

~~(a) You must comply with the requirements in §§63.11116(a) and 63.11117(b).~~

~~(b) Except as provided in paragraph (c) of this section, you must meet the requirements in either paragraph (b)(1) or paragraph (b)(2) of this section.~~

~~(1) Each management practice in Table 1 to this subpart that applies to your GDF.~~

~~(2) If, prior to January 10, 2008, you satisfy the requirements in both paragraphs (b)(2)(i) and (ii) of this section, you will be deemed in compliance with this subsection.~~

~~(i) You operate a vapor balance system at your GDF that meets the requirements of either paragraph (b)(2)(i)(A) or paragraph (b)(2)(i)(B) of this section.~~

~~(A) Achieves emissions reduction of at least 90 percent.~~

~~(B) Operates using management practices at least as stringent as those in Table 1 to this subpart.~~

~~(ii) Your gasoline dispensing facility is in compliance with an enforceable State, local, or tribal rule or permit that contains requirements of either paragraph (b)(2)(i)(A) or paragraph (b)(2)(i)(B) of this section.~~

~~(c) The emission sources listed in paragraphs (c)(1) through (3) of this section are not required to comply with the control requirements in paragraph (b) of this section, but must comply with the requirements in §63.11117.~~

~~(1) Gasoline storage tanks with a capacity of less than 250 gallons that are constructed after January 10, 2008.~~

~~(2) Gasoline storage tanks with a capacity of less than 2,000 gallons that were constructed before January 10, 2008.~~

~~(3) Gasoline storage tanks equipped with floating roofs, or the equivalent.~~

~~(d) Cargo tanks unloading at GDF must comply with the management practices in Table 2 to this subpart.~~

~~(e) You must comply with the applicable testing requirements contained in §63.11120.~~

~~(f) You must submit the applicable notifications as required under §63.11124.~~

~~(g) You must keep records and submit reports as specified in §63.11125 and §63.11126.~~

~~(h) You must comply with the requirements of this subpart by the applicable dates contained in §63.11113.~~

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008]

§63.11118 will not apply because Midas Gold is not proposing to operate a GDF with a monthly throughput of 100,000 gallons of gasoline or more.

~~Testing and Monitoring Requirements~~

~~§63.11120 What testing and monitoring requirements must I meet?~~

~~(a) Each owner or operator, at the time of installation, as specified in §63.11113(e), of a vapor balance system required under §63.11118(b)(1), and every 3 years thereafter, must comply with the requirements in paragraphs (a)(1) and (2) of this section.~~

~~(1) You must demonstrate compliance with the leak rate and cracking pressure requirements, specified in item 1(g) of Table 1 to this subpart, for pressure-vacuum vent valves installed on your gasoline storage tanks using the test methods identified in paragraph (a)(1)(i) or paragraph (a)(1)(ii) of this section.~~

~~(i) California Air Resources Board Vapor Recovery Test Procedure TP-201.1E, Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves, adopted October 8, 2003 (incorporated by reference, see §63.14).~~

~~(ii) Use alternative test methods and procedures in accordance with the alternative test method requirements in §63.7(f).~~

~~(2) You must demonstrate compliance with the static pressure performance requirement specified in item 1(h) of Table 1 to this subpart for your vapor balance system by conducting a static pressure test on your gasoline storage tanks using the test methods identified in paragraphs (a)(2)(i), (a)(2)(ii), or (a)(2)(iii) of this section.~~

~~(i) California Air Resources Board Vapor Recovery Test Procedure TP-201.3, Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities, adopted April 12, 1996, and amended March 17, 1999 (incorporated by reference, see §63.14).~~

~~(ii) Use alternative test methods and procedures in accordance with the alternative test method requirements in §63.7(f).~~

~~(iii) Bay Area Air Quality Management District Source Test Procedure ST-30 Static Pressure Integrity Test Underground Storage Tanks, adopted November 30, 1983, and amended December 21, 1994 (incorporated by reference, *see* §63.14).~~

~~(b) Each owner or operator choosing, under the provisions of §63.6(g), to use a vapor balance system other than that described in Table 1 to this subpart must demonstrate to the Administrator or delegated authority under paragraph §63.11131(a) of this subpart, the equivalency of their vapor balance system to that described in Table 1 to this subpart using the procedures specified in paragraphs (b)(1) through (3) of this section.~~

~~(1) You must demonstrate initial compliance by conducting an initial performance test on the vapor balance system to demonstrate that the vapor balance system achieves 95 percent reduction using the California Air Resources Board Vapor Recovery Test Procedure TP-201.1, Volumetric Efficiency for Phase I Vapor Recovery Systems, adopted April 12, 1996, and amended February 1, 2001, and October 8, 2003, (incorporated by reference, see §63.14).~~

~~(2) You must, during the initial performance test required under paragraph (b)(1) of this section, determine and document alternative acceptable values for the leak rate and cracking pressure requirements specified in item 1(g) of Table 1 to this subpart and for the static pressure performance requirement in item 1(h) of Table 1 to this subpart.~~

~~(3) You must comply with the testing requirements specified in paragraph (a) of this section.~~

~~(c) Conduct of performance tests. Performance tests conducted for this subpart shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance (*i.e.*, performance based on normal operating conditions) of the affected source. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.~~

~~(d) Owners and operators of gasoline cargo tanks subject to the provisions of Table 2 to this subpart must conduct annual certification testing according to the vapor tightness testing requirements found in §63.11092(f).~~

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4182, Jan. 24, 2011]

§63.11120 will not apply because the Stibnite Gold Project GDFs will not be required to install a vapor balance system as they are not proposing to have a monthly throughput of 100,000 gallons of gasoline or more. Therefore, they will not be required to demonstrate compliance with the requirements of §63.11120.

Notifications, Records, and Reports

§63.11124 What notifications must I submit and when?

(a) Each owner or operator subject to the control requirements in §63.11117 must comply with paragraphs (a)(1) through (3) of this section.

(1) You must submit an Initial Notification that you are subject to this subpart ~~by May 9, 2008, or~~ at the time you become subject to the control requirements in §63.11117, ~~unless you meet the requirements in paragraph (a)(3) of this section. If your affected source is subject to the control requirements in §63.11117 only because it loads gasoline into fuel tanks other than those in motor vehicles, as defined in §63.11132, you must submit the Initial Notification by May 24, 2011.~~ The Initial Notification must contain the information specified in paragraphs (a)(1)(i) through (iii) of this section. The notification must be submitted to the applicable EPA Regional Office and delegated State authority as specified in §63.13.

(i) The name and address of the owner and the operator.

(ii) The address (i.e., physical location) of the GDF.

(iii) A statement that the notification is being submitted in response to this subpart and identifying the requirements in paragraphs (a) through (c) of §63.11117 that apply to you.

(2) You must submit a Notification of Compliance Status to the applicable EPA Regional Office and the delegated State authority, as specified in §63.13, within 60 days of the applicable compliance date specified in §63.11113, ~~unless you meet the requirements in paragraph (a)(3) of this section~~. The Notification of Compliance Status must be signed by a responsible official who must certify its accuracy, must indicate whether the source has complied with the requirements of this subpart, and must indicate whether the facilities' monthly throughput is calculated based on the volume of gasoline loaded into all storage tanks or on the volume of gasoline dispensed from all storage tanks. If your facility is in compliance with the requirements of this subpart at the time the Initial Notification required under paragraph (a)(1) of this section is due, the Notification of Compliance Status may be submitted in lieu of the Initial Notification provided it contains the information required under paragraph (a)(1) of this section.

(3) ~~If, prior to January 10, 2008, you are operating in compliance with an enforceable State, local, or tribal rule or permit that requires submerged fill as specified in §63.11117(b), you are not required to submit an Initial Notification or a Notification of Compliance Status under paragraph (a)(1) or paragraph (a)(2) of this section.~~

~~(b) Each owner or operator subject to the control requirements in §63.11118 must comply with paragraphs (b)(1) through (5) of this section.~~

~~(1) You must submit an Initial Notification that you are subject to this subpart by May 9, 2008, or at the time you become subject to the control requirements in §63.11118. If your affected source is subject to the control requirements in §63.11118 only because it loads gasoline into fuel tanks other than those in motor vehicles, as defined in §63.11132, you must submit the Initial Notification by May 24, 2011. The Initial Notification must contain the information specified in paragraphs (b)(1)(i) through (iii) of this section. The notification must be submitted to the applicable EPA Regional Office and delegated State authority as specified in §63.13.~~

~~(i) The name and address of the owner and the operator.~~

~~(ii) The address (i.e., physical location) of the GDF.~~

~~(iii) A statement that the notification is being submitted in response to this subpart and identifying the requirements in paragraphs (a) through (c) of §63.11118 that apply to you.~~

~~(2) You must submit a Notification of Compliance Status to the applicable EPA Regional Office and the delegated State authority, as specified in §63.13, in accordance with the schedule specified in §63.9(h). The Notification of Compliance Status must be signed by a responsible official who must certify its accuracy, must indicate whether the source has complied with the requirements of this subpart, and must indicate whether the facility's throughput is determined based on the volume of gasoline loaded into all storage tanks or on the volume of gasoline dispensed from all storage tanks. If your facility is in compliance with the requirements of this subpart at the time the Initial Notification required under paragraph (b)(1) of this section is due, the Notification of Compliance Status may be submitted in lieu of the Initial Notification provided it contains the information required under paragraph (b)(1) of this section.~~

~~(3) If, prior to January 10, 2008, you satisfy the requirements in both paragraphs (b)(3)(i) and (ii) of this section, you are not required to submit an Initial Notification or a Notification of Compliance Status under paragraph (b)(1) or paragraph (b)(2) of this subsection.~~

~~(i) You operate a vapor balance system at your gasoline dispensing facility that meets the requirements of either paragraphs (b)(3)(i)(A) or (b)(3)(i)(B) of this section.~~

~~(A) Achieves emissions reduction of at least 90 percent.~~

~~(B) Operates using management practices at least as stringent as those in Table 1 to this subpart.~~

~~(ii) Your gasoline dispensing facility is in compliance with an enforceable State, local, or tribal rule or permit that contains requirements of either paragraphs (b)(3)(i)(A) or (b)(3)(i)(B) of this section.~~

~~(4) You must submit a Notification of Performance Test, as specified in §63.9(e), prior to initiating testing required by §63.11120(a) and (b).~~

~~(5) You must submit additional notifications specified in §63.9, as applicable.~~

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008; 76 FR 4182, Jan. 24, 2011]

§63.11124(a) will apply as Midas Gold is proposing to operate two GDFs subject to the control requirements in §63.11117. They will be required to submit an Initial Notification upon startup. In addition, they will be required to submit a Notification of Compliance Status within 60 days of startup of each affected source.

§63.11124(b) will not apply as the Stibnite Gold Project GDFs will not be subject to control requirements in §63.11118.

§63.11125 What are my recordkeeping requirements?

~~(a) Each owner or operator subject to the management practices in §63.11118 must keep records of all tests performed under §63.11120(a) and (b).~~

~~(b) Records required under paragraph (a) of this section shall be kept for a period of 5 years and shall be made available for inspection by the Administrator's delegated representatives during the course of a site visit.~~

~~(c) Each owner or operator of a gasoline cargo tank subject to the management practices in Table 2 to this subpart must keep records documenting vapor tightness testing for a period of 5 years. Documentation must include each of the items specified in §63.11094(b)(2)(i) through (viii). Records of vapor tightness testing must be retained as specified in either paragraph (c)(1) or paragraph (c)(2) of this section.~~

~~(1) The owner or operator must keep all vapor tightness testing records with the cargo tank.~~

~~(2) As an alternative to keeping all records with the cargo tank, the owner or operator may comply with the requirements of paragraphs (c)(2)(i) and (ii) of this section.~~

~~(i) The owner or operator may keep records of only the most recent vapor tightness test with the cargo tank, and keep records for the previous 4 years at their office or another central location.~~

~~(ii) Vapor tightness testing records that are kept at a location other than with the cargo tank must be instantly available (*e.g.*, via e-mail or facsimile) to the Administrator's delegated representative during the course of a site visit or within a mutually agreeable time frame. Such records must be an exact duplicate image of the original paper copy record with certifying signatures.~~

(d) Each owner or operator of an affected source under this subpart shall keep records as specified in paragraphs (d)(1) and (2) of this section.

(1) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control and monitoring equipment.

(2) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.11115(a), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4183, Jan. 24, 2011]

§63.11125(a)-(b) will not apply as the Stibnite Gold Project GDFs will not be subject to the management practices in §63.11118.

§63.11125(c) will not apply as the Stibnite Gold Project GDFs will be not subject to the management practices in Table 2, as they are not

gasoline cargo tanks.

§63.11125(d) will apply to the two Stibnite Gold Project GDFs and Midas Gold will be required to keep records of each malfunction, including occurrence, duration, and actions taken during periods of malfunction to minimize emission, and corrective actions to restore to normal operation.

§63.11126 What are my reporting requirements?

~~(a) Each owner or operator subject to the management practices in §63.11118 shall report to the Administrator the results of all volumetric efficiency tests required under §63.11120(b). Reports submitted under this paragraph must be submitted within 180 days of the completion of the performance testing.~~

(b) Each owner or operator of an affected source under this subpart shall report, by March 15 of each year, the number, duration, and a brief description of each type of malfunction which occurred during the previous calendar year and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.11115(a), including actions taken to correct a malfunction. No report is necessary for a calendar year in which no malfunctions occurred.

[76 FR 4183, Jan. 24, 2011]

§63.11126(a) will not apply as the Stibnite Gold Project GDFs will not be subject to the management practices in §63.11118.

§63.11126(b) will apply to the two Stibnite Gold Project GDFs and Midas Gold will be required to submit a report by March 15 of each year, if any malfunctions occurred.

Other Requirements and Information

§63.11130 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions apply to you.

See Table 3 of this subpart for the applicable General Provisions to this subpart.

§63.11131 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority such as the applicable State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are as specified in paragraphs (c)(1) through (3) of this section.

(1) Approval of alternatives to the requirements in §§63.11116 through 63.11118 and 63.11120.

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f), as defined in §63.90, and as required in this subpart.

(3) Approval of major alternatives to recordkeeping and reporting under §63.10(f), as defined in §63.90, and as required in this subpart.

The implementation and enforcement of this subpart per §63.11131 will apply.

§63.11132 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act (CAA), or in subparts A and BBBBBB of this part. For purposes of this subpart, definitions in this section supersede definitions in other parts or subparts.

~~*Dual-point vapor balance system* means a type of vapor balance system in which the storage tank is equipped with an entry port for a gasoline fill pipe and a separate exit port for a vapor connection.~~

Gasoline means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater, which is used as a fuel for internal combustion engines.

~~*Gasoline cargo tank* means a delivery tank truck or railcar which is loading or unloading gasoline, or which has loaded or unloaded gasoline on the immediately previous load.~~

Gasoline dispensing facility (GDF) means any stationary facility which dispenses gasoline into the fuel tank of a motor vehicle, motor vehicle engine, nonroad vehicle, or nonroad engine, including a nonroad vehicle or nonroad engine used solely for competition. These facilities include, but are not limited to, facilities that dispense gasoline into on- and off-road, street, or highway motor vehicles, lawn equipment, boats, test engines, landscaping equipment, generators, pumps, and other gasoline-fueled engines and equipment.

Monthly throughput means the total volume of gasoline that is loaded into, or dispensed from, all gasoline storage tanks at each GDF during a month. Monthly throughput is calculated by summing the volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the current day, plus the total volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the previous 364 days, and then dividing that sum by 12.

Motor vehicle means any self-propelled vehicle designed for transporting persons or property on a street or highway.

Nonroad engine means an internal combustion engine (including the fuel system) that is not used in a motor vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under section 7411 of this title or section 7521 of this title.

Nonroad vehicle means a vehicle that is powered by a nonroad engine, and that is not a motor vehicle or a vehicle used solely for competition.

Submerged filling means, for the purposes of this subpart, the filling of a gasoline storage tank through a submerged fill pipe whose discharge is no more than the applicable distance specified in §63.11117(b) from the bottom of the tank. Bottom filling of gasoline storage tanks is included in this definition.

~~*Vapor balance system* means a combination of pipes and hoses that create a closed system between the vapor spaces of an unloading gasoline cargo tank and a receiving storage tank such that vapors displaced from the storage tank are transferred to the gasoline cargo tank being unloaded.~~

~~*Vapor-tight* means equipment that allows no loss of vapors. Compliance with vapor-tight requirements can be determined by checking to ensure that the concentration at a potential leak source is not equal to or greater than 100 percent of the Lower Explosive Limit when measured with a combustible gas detector, calibrated with propane, at a distance of 1 inch from the source.~~

~~*Vapor-tight gasoline cargo tank* means a gasoline cargo tank which has demonstrated within the 12 preceding months that it meets the annual certification test requirements in §63.11092(f) of this part.~~

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4183, Jan. 24, 2011]

The highlighted definitions in §63.11132 will apply to the Stibnite Gold Project GDFs subject to this subpart.

~~Table 1 to Subpart CCCCCC of Part 63—Applicability Criteria and Management Practices for Gasoline Dispensing Facilities With Monthly Throughput of 100,000 Gallons of Gasoline or More~~[1]

~~If you own or operate~~	~~Then you must~~
~~1. A new, reconstructed, or existing GDF subject to §63.11118~~	~~Install and operate a vapor balance system on your gasoline storage tanks that meets the design criteria in paragraphs (a) through (h).~~
	~~(a) All vapor connections and lines on the storage tank shall be equipped with closures that seal upon disconnect.~~
	~~(b) The vapor line from the gasoline storage tank to the gasoline cargo tank shall be vapor-tight, as defined in §63.11132.~~
	~~(c) The vapor balance system shall be designed such that the pressure in the tank truck does not exceed 18 inches water pressure or 5.9 inches water vacuum during product transfer.~~
	~~(d) The vapor recovery and product adaptors, and the method of connection with the delivery elbow, shall be designed so as to prevent the over-tightening or loosening of fittings during normal delivery operations.~~
	~~(e) If a gauge well separate from the fill tube is used, it shall be provided with a submerged drop tube that extends the same distance from the bottom of the storage tank as specified in §63.11117(b).~~
	~~(f) Liquid fill connections for all systems shall be equipped with vapor-tight caps.~~
	~~(g) Pressure/vacuum (PV) vent valves shall be installed on the storage tank vent pipes. The pressure specifications for PV vent valves shall be: a positive pressure setting of 2.5 to 6.0 inches of water and a negative pressure setting of 6.0 to 10.0 inches of water. The total leak rate of all PV vent valves at an affected facility, including connections, shall not exceed 0.17 cubic foot per hour at a pressure of 2.0 inches of water and 0.63 cubic foot per hour at a vacuum of 4 inches of water.~~
	~~(h) The vapor balance system shall be capable of meeting the static pressure performance requirement of the following equation:~~
	~~$Pf = 2e^{-500.887/v}$~~
	~~Where:~~
	~~Pf = Minimum allowable final pressure, inches of water.~~

	~~v = Total ullage affected by the test, gallons.~~
	~~e = Dimensionless constant equal to approximately 2.718.~~
	~~2 = The initial pressure, inches water.~~
~~2. A new or reconstructed GDF, or any storage tank(s) constructed after November 9, 2006, at an existing affected facility subject to §63.11118~~	~~Equip your gasoline storage tanks with a dual-point vapor balance system, as defined in §63.11132, and comply with the requirements of item 1 in this Table.~~

~~[1]The management practices specified in this Table are not applicable if you are complying with the requirements in §63.11118(b)(2), except that if you are complying with the requirements in §63.11118(b)(2)(i)(B), you must operate using management practices at least as stringent as those listed in this Table.~~

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 35944, June 25, 2008; 76 FR 4184, Jan. 24, 2011]

Table 1 will not apply as Midas Gold is not proposing to operate a GDF with a monthly throughput of 100,000 gallons of gasoline or more.

~~Table 2 to Subpart CCCCCC of Part 63—Applicability Criteria and Management Practices for Gasoline Cargo Tanks Unloading at Gasoline Dispensing Facilities With Monthly Throughput of 100,000 Gallons of Gasoline or More~~

~~If you own or operate~~	~~Then you must~~
~~A gasoline cargo tank~~	~~Not unload gasoline into a storage tank at a GDF subject to the control requirements in this subpart unless the following conditions are met:~~
	~~(i) All hoses in the vapor balance system are properly connected,~~
	~~(ii) The adapters or couplers that attach to the vapor line on the storage tank have closures that seal upon disconnect,~~
	~~(iii) All vapor return hoses, couplers, and adapters used in the gasoline delivery are vapor-tight,~~
	~~(iv) All tank truck vapor return equipment is compatible in size and forms a vapor-tight connection with the vapor balance equipment on the GDF storage tank, and~~
	~~(v) All hatches on the tank truck are closed and securely fastened.~~
	~~(vi) The filling of storage tanks at GDF shall be limited to unloading from vapor-tight gasoline cargo tanks. Documentation that the cargo tank has met the specifications of EPA Method 27 shall be carried with the cargo tank, as specified in §63.11125(c).~~

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4184, Jan. 24, 2011]

Table 2 will not apply as Midas Gold is not proposing to operate a gasoline cargo tank at a GDF with a monthly throughput of 100,000 gallons of gasoline or more.

Table 3 to Subpart CCCCCC of Part 63—Applicability of General Provisions

Citation	Subject	Brief description	Applies to subpart CCCCCC
§63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions, notifications	Yes, specific requirements given in §63.11111.
§63.1(c)(2)	Title V Permit	Requirements for obtaining a title V permit from the applicable permitting authority	Yes, §63.11111(f) of subpart CCCCCC exempts identified area sources from the obligation to obtain title V operating permits.
§63.2	Definitions	Definitions for part 63 standards	Yes, additional definitions in §63.11132.
§63.3	Units and Abbreviations	Units and abbreviations for part 63 standards	Yes.
§63.4	Prohibited Activities and Circumvention	Prohibited activities; Circumvention, severability	Yes.
§63.5	Construction/Reconstruction	Applicability; applications; approvals	Yes, except that these notifications are not required for facilities subject to §63.11116
§63.6(a)	Compliance with Standards/Operation & Maintenance—Applicability	General Provisions apply unless compliance extension; General Provisions apply to area sources that become major	Yes.
§63.6(b)(1)-(4)	Compliance Dates for New and Reconstructed Sources	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for CAA section 112(f)	Yes.
§63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal	Yes.
~~§63.6(b)(6)~~	~~[Reserved]~~		
~~§63.6(b)(7)~~	~~Compliance Dates for New and Reconstructed Area Sources That Become Major~~	~~Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whether required to comply when they were an area source~~	~~No.~~
~~§63.6(c)(1)-(2)~~	~~Compliance Dates for Existing Sources~~	~~Comply according to date in this subpart, which must be no later than 3 years after effective date; for CAA section 112(f) standards, comply within 90 days of effective date unless compliance extension~~	~~No, §63.11113 specifies the compliance dates.~~
~~§63.6(c)(3)-(4)~~	~~[Reserved]~~		

§63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major	Area sources That become major must comply with major source standards by date indicated in this subpart or by equivalent time period (e.g., 3 years)	No.
§63.6(d)	[Reserved]		
63.6(e)(1)(i)	General duty to minimize emissions	Operate to minimize emissions at all times; information Administrator will use to determine if operation and maintenance requirements were met.	No. *See* §63.11115 for general duty requirement.
63.6(e)(1)(ii)	Requirement to correct malfunctions ASAP	Owner or operator must correct malfunctions as soon as possible.	No.
§63.6(e)(2)	[Reserved]		
§63.6(e)(3)	Startup, Shutdown, and Malfunction (SSM) Plan	Requirement for SSM plan; content of SSM plan; actions during SSM	No.
§63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM	No.
§63.6(f)(2)-(3)	Methods for Determining Compliance	Compliance based on performance test, operation and maintenance plans, records, inspection	Yes.
§63.6(g)(1)-(3)	Alternative Standard	Procedures for getting an alternative standard	Yes.
§63.6(h)(1)	Compliance with Opacity/Visible Emission (VE) Standards	You must comply with opacity/VE standards at all times except during SSM	No.
§63.6(h)(2)(i)	Determining Compliance with Opacity/VE Standards	If standard does not State test method, use EPA Method 9 for opacity in appendix A of part 60 of this chapter and EPA Method 22 for VE in appendix A of part 60 of this chapter	No.
§63.6(h)(2)(ii)	[Reserved]		
§63.6(h)(2)(iii)	Using Previous Tests To Demonstrate Compliance With Opacity/VE Standards	Criteria for when previous opacity/VE testing can be used to show compliance with this subpart	No.
§63.6(h)(3)	[Reserved]		
§63.6(h)(4)	Notification of Opacity/VE Observation Date	Must notify Administrator of anticipated date of observation	No.
§63.6(h)(5)(i), (iii)-(v)	Conducting Opacity/VE Observations	Dates and schedule for conducting opacity/VE observations	No.
§63.6(h)(5)(ii)	Opacity Test Duration and Averaging Times	Must have at least 3 hours of observation with 30 6-minute averages	No.
§63.6(h)(6)	Records of Conditions During Opacity/VE Observations	Must keep records available and allow Administrator to inspect	No.
§63.6(h)(7)(i)	Report Continuous Opacity Monitoring System (COMS) Monitoring Data From Performance Test	Must submit COMS data with other performance test data	No.
§63.6(h)(7)(ii)	Using COMS Instead of EPA Method 9	Can submit COMS data instead of EPA Method 9 results even if rule requires EPA Method 9 in appendix A of part 60 of this chapter, but must notify Administrator before performance test	No.
§63.6(h)(7)(iii)	Averaging Time for COMS During Performance Test	To determine compliance, must reduce COMS data to 6-minute averages	No.
§63.6(h)(7)(iv)	COMS Requirements	Owner/operator must demonstrate that COMS performance evaluations are conducted according to §63.8(e); COMS are properly maintained and operated according to §63.8(c) and data quality as §63.8(d)	No.
§63.6(h)(7)(v)	Determining Compliance with Opacity/VE Standards	COMS is probable but not conclusive evidence of compliance with opacity standard, even if EPA Method 9 observation shows otherwise. Requirements for COMS to be probable evidence-proper maintenance, meeting Performance Specification 1 in appendix B of part 60 of this chapter, and data have not been altered	No.
§63.6(h)(8)	Determining Compliance with Opacity/VE Standards	Administrator will use all COMS, EPA Method 9 (in appendix A of part 60 of this chapter), and EPA Method 22 (in appendix A of part 60 of this chapter) results, as well as information about operation and maintenance to determine compliance	No.
§63.6(h)(9)	Adjusted Opacity Standard	Procedures for Administrator to adjust an opacity standard	No.
§63.6(i)(1)-(14)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension	Yes.
§63.6(j)	Presidential Compliance Exemption	President may exempt any source from requirement to comply with this subpart	Yes.
§63.7(a)(2)	Performance Test Dates	Dates for conducting initial performance testing; must conduct 180 days after compliance date	Yes.
§63.7(a)(3)	CAA Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time	Yes.
§63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test	Yes.
§63.7(b)(2)	Notification of Re-scheduling	If have to reschedule performance test, must notify Administrator of rescheduled date as soon as practicable and without delay	Yes.
§63.7(c)	Quality Assurance (QA)/Test Plan	Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing	Yes.
§63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.
63.7(e)(1)	Conditions for Conducting Performance Tests	Performance test must be conducted under representative conditions	No, §63.11120(c) specifies conditions for conducting performance tests.

§63.7(e)(2)	Conditions for Conducting Performance Tests	Must conduct according to this subpart and EPA test methods unless Administrator approves alternative	Yes.
§63.7(e)(3)	Test Run Duration	Must have three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used	Yes.
§63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an intermediate or major change, or alternative to a test method	Yes.
§63.7(g)	Performance Test Data Analysis	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the Notification of Compliance Status; keep data for 5 years	Yes.
§63.7(h)	Waiver of Tests	Procedures for Administrator to waive performance test	Yes.
§63.8(a)(1)	Applicability of Monitoring Requirements	Subject to all monitoring requirements in standard	Yes.
§63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of 40 CFR part 60 apply	Yes.
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring of Flares	Monitoring requirements for flares in §63.11 apply	Yes.
§63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative	Yes.
§63.8(b)(2)-(3)	Multiple Effluents and Multiple Monitoring Systems	Specific requirements for installing monitoring systems; must install on each affected source or after combined with another affected source before it is released to the atmosphere provided the monitoring is sufficient to demonstrate compliance with the standard; if more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup	No.
§63.8(c)(1)	Monitoring System Operation and Maintenance	Maintain monitoring system in a manner consistent with good air pollution control practices	No.
§63.8(c)(1)(i)-(iii)	Operation and Maintenance of Continuous Monitoring Systems (CMS)	Must maintain and operate each CMS as specified in §63.6(e)(1); must keep parts for routine repairs readily available; must develop a written SSM plan for CMS, as specified in §63.6(e)(3)	No.
§63.8(c)(2)-(8)	CMS Requirements	Must install to get representative emission or parameter measurements; must verify operational status before or at performance test	No.
§63.8(d)	CMS Quality Control	Requirements for CMS quality control, including calibration, etc.; must keep quality control plan on record for 5 years; keep old versions for 5 years after revisions	No.
§63.8(e)	CMS Performance Evaluation	Notification, performance evaluation test plan, reports	No.
§63.8(f)(1)-(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring	No.
§63.8(f)(6)	Alternative to Relative Accuracy Test	Procedures for Administrator to approve alternative relative accuracy tests for continuous emissions monitoring system (CEMS)	No.
§63.8(g)	Data Reduction	COMS 6-minute averages calculated over at least 36 evenly spaced data points; CEMS 1 hour averages computed over at least 4 equally spaced data points; data that cannot be used in average	No.
§63.9(a)	Notification Requirements	Applicability and State delegation	Yes.
§63.9(b)(1)-(2),(4)-(5)	Initial Notifications	Submit notification within 120 days after effective date; notification of intent to construct/reconstruct, notification of commencement of construction/reconstruction, notification of startup; contents of each	Yes.
§63.9(c)	Request for Compliance Extension	Can request if cannot comply by date or if installed best available control technology or lowest achievable emission rate	Yes.
§63.9(d)	Notification of Special Compliance Requirements for New Sources	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date	Yes.
§63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§63.9(f)	Notification of VE/Opacity Test	Notify Administrator 30 days prior	No.
§63.9(g)	Additional Notifications when Using CMS	Notification of performance evaluation; notification about use of COMS data; notification that exceeded criterion for relative accuracy alternative	Yes, however, there are no opacity standards.
§63.9(h)(1)-(6)	Notification of Compliance Status	Contents due 60 days after end of performance test or other compliance demonstration, except for opacity/VE, which are due 30 days after; when to submit to Federal vs. State authority	Yes, however, there are no opacity standards.
§63.9(i)	Adjustment of Submittal Deadlines	Procedures for Administrator to approve change when notifications must be submitted	Yes.
§63.9(j)	Change in Previous Information	Must submit within 15 days after the change	Yes.
§63.10(a)	Recordkeeping/Reporting	Applies to all, unless compliance extension; when to submit to Federal vs. State authority; procedures for owners of more than one source	Yes.
§63.10(b)(1)	Recordkeeping/Reporting	General requirements; keep all records readily available; keep for 5 years	Yes.
§63.10(b)(2)(i)	Records related to SSM	Recordkeeping of occurrence and duration of startups and shutdowns	No.
§63.10(b)(2)(ii)	Records related to SSM	Recordkeeping of malfunctions	No. *See* §63.11125(d) for recordkeeping of (1) occurrence and duration and (2) actions taken during malfunction.
§63.10(b)(2)(iii)	Maintenance records	Recordkeeping of maintenance on air pollution control and monitoring equipment	Yes.
§63.10(b)(2)(iv)	Records Related to SSM	Actions taken to minimize emissions during SSM	No.
§63.10(b)(2)(v)	Records Related to SSM	Actions taken to minimize emissions during SSM	No.

§63.10(b)(2)(vi)-(xi)	CMS Records	Malfunctions, inoperative, out-of-control periods	No.
§63.10(b)(2)(xii)	Records	Records when under waiver	Yes.
§63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test	Yes.
§63.10(b)(2)(xiv)	Records	All documentation supporting Initial Notification and Notification of Compliance Status	Yes.
§63.10(b)(3)	Records	Applicability determinations	Yes.
§63.10(c)	Records	Additional records for CMS	No.
§63.10(d)(1)	General Reporting Requirements	Requirement to report	Yes.
§63.10(d)(2)	Report of Performance Test Results	When to submit to Federal or State authority	Yes.
§63.10(d)(3)	Reporting Opacity or VE Observations	What to report and when	No.
§63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension	Yes.
§63.10(d)(5)	SSM Reports	Contents and submission	No. *See* §63.11126(b) for malfunction reporting requirements.
§63.10(e)(1)-(2)	Additional CMS Reports	Must report results for each CEMS on a unit; written copy of CMS performance evaluation; two-three copies of COMS performance evaluation	No.
§63.10(e)(3)(i)-(iii)	Reports	Schedule for reporting excess emissions	No.
§63.10(e)(3)(iv)-(v)	Excess Emissions Reports	Requirement to revert to quarterly submission if there is an excess emissions and parameter monitor exceedances (now defined as deviations); provision to request semiannual reporting after compliance for 1 year; submit report by 30th day following end of quarter or calendar half; if there has not been an exceedance or excess emissions (now defined as deviations), report contents in a statement that there have been no deviations; must submit report containing all of the information in §§63.8(c)(7)-(8) and 63.10(c)(5)-(13)	No.
§63.10(e)(3)(iv)-(v)	Excess Emissions Reports	Requirement to revert to quarterly submission if there is an excess emissions and parameter monitor exceedances (now defined as deviations); provision to request semiannual reporting after compliance for 1 year; submit report by 30th day following end of quarter or calendar half; if there has not been an exceedance or excess emissions (now defined as deviations), report contents in a statement that there have been no deviations; must submit report containing all of the information in §§63.8(c)(7)-(8) and 63.10(c)(5)-(13)	No, §63.11130(K) specifies excess emission events for this subpart.
§63.10(e)(3)(vi)-(viii)	Excess Emissions Report and Summary Report	Requirements for reporting excess emissions for CMS; requires all of the information in §§63.10(c)(5)-(13) and 63.8(c)(7)-(8)	No.
§63.10(e)(4)	Reporting COMS Data	Must submit COMS data with performance test data	No.
§63.10(f)	Waiver for Recordkeeping/Reporting	Procedures for Administrator to waive	Yes.
§63.11(b)	Flares	Requirements for flares	No.
§63.12	Delegation	State authority to enforce standards	Yes.
§63.13	Addresses	Addresses where reports, notifications, and requests are sent	Yes.
§63.14	Incorporations by Reference	Test methods incorporated by reference	Yes.
§63.15	Availability of Information	Public and confidential information	Yes.

[73 FR 1945, Jan. 10, 2008, as amended at 76 FR 4184, Jan. 24, 2011]

The applicable General Provisions are highlighted in Table 3.

NESHAP, Subpart EEEEEEE – National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of January 10, 2019

Title 40 → Chapter I → Subchapter C → Part 63 → Subpart EEEEEEE

Title 40: Protection of Environment
PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES (CONTINUED)

Subpart EEEEEEE—National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category

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SOURCE: 76 FR 9480, Feb. 17, 2011, unless otherwise noted.

APPLICABILITY AND COMPLIANCE DATES

§63.11640 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate a gold mine ore processing and production facility as defined in §63.11651, that is an area source.

(b) This subpart applies to each new ~~or existing~~ affected source. The affected sources are each collection of "ore pretreatment processes" at a gold mine ore processing and production facility, each collection of "carbon processes with mercury retorts" at a gold mine ore processing and production facility~~, each collection of "carbon processes without mercury retorts" at a gold mine ore processing and production facility, and each collection of "non-carbon concentrate processes" at a gold mine ore processing and production facility,~~ as defined in §63.11651.

~~(1) An affected source is existing if you commenced construction or reconstruction of the affected source on or before April 28, 2010.~~

(2) An affected source is new if you commenced construction or reconstruction of the affected source after April 28, 2010.

~~(c) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act (CAA).~~

(d) If you own or operate a source subject to this subpart, you must have or you must obtain a permit under 40 CFR part 70 ~~or 40 CFR part 71.~~

Midas Gold is proposing to operate a gold mine ore processing and production facility at the Stibnite Gold Project, and as an area source, will therefore be subject to this subpart per §63.11640(a). The affected sources are each collection of "ore pretreatment processes" at a gold mine ore processing and production facility, and each collection of "carbon processes with mercury retorts" at a gold mine ore processing and production facility, per §63.11640(b). The affected sources will be new as they will commence construction after April 28, 2010, per §63.11640(b)(2). Midas Gold will be required to obtain a permit under 40 CFR part 70 (i.e., Title V permit) for the affected sources subject to this subpart, per §63.11640(d).

§63.11641 What are my compliance dates?

~~(a) If you own or operate an existing affected source, you must comply with the applicable provisions of this subpart no later than February 17, 2014.~~

~~(b) If you own or operate a new affected source, and the initial startup of your affected source is on or before February 17, 2011, you must comply with the provisions of this subpart no later than February 17, 2011.~~

(c) If you own or operate a new affected source, and the initial startup of your affected source is after February 17, 2011, you must comply with the provisions of this subpart upon startup of your affected source.

The Stibnite Gold Project will include two new affected sources, each with an initial startup after February 17, 2011, therefore Midas Gold must comply with the provisions of this subpart upon startup of the affected sources per §63.11641(c).

Standards and Compliance Requirements

§63.11645 What are my mercury emission standards?

~~(a) For existing ore pretreatment processes, you must emit no more than 127 pounds of mercury per million tons of ore processed.~~

~~(b) For existing carbon processes with mercury retorts, you must emit no more than 2.2 pounds of mercury per ton of concentrate processed.~~

~~(c) For existing carbon processes without mercury retorts, you must emit no more than 0.17 pounds of mercury per ton of concentrate processed.~~

~~(d) For existing non-carbon concentrate processes, you must emit no more than 0.2 pounds of mercury per ton of concentrate processed.~~

(e) For new ore pretreatment processes, you must emit no more than 84 pounds of mercury per million tons of ore processed.

(f) For new carbon processes with mercury retorts, you must emit no more than 0.8 pounds of mercury per ton of concentrate processed.

~~(g) For new carbon processes without mercury retorts, you must emit no more than 0.14 pounds of mercury per ton of concentrate processed.~~

~~(h) For new non-carbon concentrate processes, you must emit no more than 0.1 pounds of mercury per ton of concentrate processed.~~

(i) The standards set forth in this section apply at all times.

Midas Gold proposes to operate one new ore pretreatment processes affected source, which must emit no more than 84 pounds of mercury per million tons of ore processed per §63.11645(e). Midas Gold also proposes to operate one new carbon processes with mercury retorts affected source, which must emit no more than 0.8 pounds of mercury per ton of concentrate processed per §63.11645(f). These standards will apply at all times per §63.11645(i).

§63.11646 What are my compliance requirements?

(a) Except as provided in paragraph (b) of this section, you must conduct a mercury compliance emission test within 180 days of the compliance date for all process units at new ~~and existing~~ affected sources according to the requirements in paragraphs (a)(1) through (a)(13) of this section. This compliance testing must be repeated annually thereafter, with no two consecutive annual compliance tests occurring less than 3 months apart or more than 15 months apart.

(1) You must determine the concentration of mercury and the volumetric flow rate of the stack gas according to the following test methods and procedures:

(i) Method 1 or 1A (40 CFR part 60, appendix A-1) to select sampling port locations and the number of traverse points in each stack or duct. Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) and prior to any releases to the atmosphere.

(ii) Method 2, 2A, 2C, 2D, 2F (40 CFR part 60, appendix A-1), or Method 2G (40 CFR part 60, appendix A-2) to determine the volumetric flow rate of the stack gas.

(iii) Method 3, 3A, or 3B (40 CFR part 60, appendix A-2) to determine the dry molecular weight of the stack gas. You may use ANSI/ASME PTC 19.10, "Flue and Exhaust Gas Analyses" (incorporated by reference-see §63.14) as an alternative to EPA Method 3B.

(iv) Method 4 (40 CFR part 60, appendix A-3) to determine the moisture content of the stack gas.

(v) Method 29 (40 CFR part 60, appendix A-8) to determine the concentration of mercury, except as provided in paragraphs (a)(1)(vi) and (vii) of this section.

(vi) Upon approval by the permitting authority, ASTM D6784; "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)" (incorporated by reference—see §63.14) may be used as an alternative to Method 29 to determine the concentration of mercury.

(vii) Upon approval by the permitting authority, Method 30B (40 CFR part 60, appendix A-8) may be used as an alternative to Method 29 to determine the concentration of mercury for those process units with relatively low particulate-bound mercury as specified in Section 1.2 of Method 30B.

(2) A minimum of three test runs must be conducted for each performance test of each process unit. Each test run conducted with Method 29 must collect a minimum sample volume of 0.85 dry standard cubic meters (30 dry standard cubic feet). If conducted with Method 30B or ASTM D6784, determine sample time and volume according to the testing criteria set forth in the relevant method. If the emission testing results for any of the emission points yields a non-detect value, then the minimum detection limit (MDL) must be used to calculate the mass emissions rate (lb/hr) used to calculate the emissions factor (lb/ton) for that emission point and, in turn, for calculating the sum of the emissions (in units of pounds of mercury per ton of concentrate, or pounds of mercury per million tons of ore) for all emission points subject to the emission standard for determining compliance. If the resulting mercury emissions are greater than the MACT emission standard, the owner or operator may use procedures that produce lower MDL results and repeat the mercury emissions testing one additional time for any emission point for which the measured result was below the MDL. If this additional testing is performed, the results from that testing must be used to determine compliance (*i.e.,* there are no additional opportunities allowed to lower the MDL).

(3) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. Performance tests must be conducted under operating conditions (including process or production throughputs) that are based on representative performance. Record and report to the permit authority the process throughput for each test run. For sources with multiple emission units (*e.g.,* two roasters, or a furnace, electrowinning circuit and a mercury retort) ducted to a common control device and stack, compliance testing must be performed either by conducting a single compliance test with all affected emissions units in operation or by conducting a separate compliance test on each emissions unit. Alternatively, the owner or operator may request approval from the permit authority for an alternative testing approach. If the units are tested separately, any emissions unit that is not tested initially must be tested as soon as is practicable. If the performance test is conducted when all affected units are operating, then the number of hours of operation used for calculating emissions pursuant to paragraphs (a)(6) and (7) of this section must be the total number of hours for the unit that has the greatest total operating hours for that period of time, or based on an appropriate alternative method approved by the permit authority to account for the hours of operation for each separate unit in these calculations.

(4) Calculate the mercury emission rate (lb/hr), based on the average of 3 test run values, for each process unit (or combination of units that are ducted to a common stack and are tested when all affected sources are operating pursuant to paragraph (a)(3) of this section) using Equation (1) of this section:

$$E = C_s * Q_s * K \qquad \text{(Eq. 1)}$$

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Where:

E = mercury emissions in lb/hr;

Cs = concentration of mercury in the stack gas, in grains per dry standard cubic foot (gr/dscf);

Qs = volumetric flow rate of the stack gas, in dry standard cubic feet per hour; and

K = conversion factor for grains (gr) to pounds (lb), 1.43×10^{-4}.

(5) Monitor and record the number of one-hour periods each process unit operates during each month.

(6) For the initial compliance determination for both new and existing sources, determine the total mercury emissions for all the full calendar months between the compliance date and the date of the initial compliance test by multiplying the emission rate in lb/hr for each process unit (or combination of units ducted to a common stack that are tested together) by the number of one-hour periods each process unit (or the unit that had the greatest total operating hours among the combination of multiple units with one stack that are tested together, or an alternative method approved by the permit authority, pursuant to paragraph (a)(3) of this section) operated during those full calendar months prior to the initial compliance test. This initial period must include at least 1 full month of operations. After the initial compliance test, for subsequent compliance tests, determine the mercury mass emissions for the 12 full calendar months prior to the compliance test in accordance with the procedures in paragraph (a)(7) of this section. ~~Existing sources may use a previous emission test for their initial compliance determination in lieu of conducting a new test if the test was conducted within one year of the compliance date using the methods specified in paragraphs (a)(1) through (a)(4) of this section, and the tests were representative of current operating processes and conditions. If a previous test is used for their initial compliance determination, 3 to 12 full months of data on hours of operation and production (*i.e.*, million tons of ore or tons of concentrate), including the month the test was conducted, must be used to calculate the emissions rate (in units of pounds of mercury per million tons of ore for the ore pretreatment affected sources, or in units of pounds of mercury per tons of concentrate for the other affected sources).~~

(7) For compliance determinations following the initial compliance test for new and existing sources, determine the total mercury mass emissions for each process unit for the 12 full calendar months preceding the performance test by multiplying the emission rate in lb/hr for each process unit (or combination of units ducted to a common stack that are tested together) by the number of one-hour periods each process unit (or the unit that had the greatest total operating hours among the combination of multiple units with one stack that are tested together, or an alternative method approved by the permit authority, pursuant to paragraph (a)(3) of this section) operated during the 12 full calendar months preceding the completion of the performance tests.

(8) You must install, calibrate, maintain and operate an appropriate weight measurement device, mass flow meter, or densitometer and volumetric flow meter to measure ore throughput for each ~~roasting operation and~~ autoclave and calculate hourly, daily and monthly totals in tons of ore according to paragraphs (a)(8)(i) and (a)(8)(ii) of this section.

~~(i) Measure the weight or the density and volumetric flow rate of the oxidized ore slurry as it exits the roaster oxidation circuit(s) and before the carbon-in-leach tanks. Alternatively, the weight of the ore can be measured "as fed" if approved by the permit authority as an acceptable equivalent method to measure amount of ore processed.~~

(ii) Measure the weight or the density and volumetric flow rate of the ore slurry as it is fed to the autoclave(s). Alternatively, the weight or the density and volumetric flow rate of the oxidized ore slurry can be measured as it exits the autoclave and before the carbon-in-leach tanks if approved by the permit authority as an acceptable equivalent method to measure amount of ore processed.

(9) Measure the weight of concentrate (produced by electrowinning, Merrill Crowe process, gravity feed, or other methods) using weigh scales for each batch prior to processing in mercury retorts ~~or melt furnaces~~. For facilities with mercury retorts, the concentrate must be weighed in the same state and condition as it is when fed to the mercury retort. ~~For facilities without mercury retorts, the concentrate must be weighed prior to being fed to the melt furnace before drying in any ovens. For facilities that ship concentrate offsite, measure the weight of concentrate as shipped offsite.~~ You must keep accurate records of the weights of each batch of concentrate processed and calculate, and record the total weight of concentrate processed each month.

(10) You must maintain the systems for measuring density, volumetric flow rate, and weight within ±5 percent accuracy. You must describe the specific equipment used to make measurements at your facility and how that equipment is periodically calibrated. You must also explain, document, and maintain written procedures for determining the accuracy of the measurements and make these written procedures available to your permitting authority upon request. You must determine, record, and maintain a record of the accuracy of the measuring systems before the beginning of your initial compliance test and during each subsequent quarter of affected source operation.

(11) Record the weight in tons of ore for ore pretreatment processes and concentrate for carbon processes with mercury retorts, ~~carbon processes without mercury retorts, and for non-carbon concentrate processes~~ on a daily and monthly basis.

(12) Calculate the emissions from each new and existing affected source for the sum of all full months between the compliance date and the date of the initial compliance test in pounds of mercury per ton of process input using the procedures in paragraphs (a)(12)(i) through (a)(12)(iv) of this section to determine initial compliance with the emission standards in §63.11645. This must include at least 1 full month of data. ~~Or, if a previous test is used pursuant to paragraph (a)(6) of this section for the initial compliance test, use a period of time pursuant to paragraph (a)(6) of this section to calculate the emissions for the affected source. After this initial compliance test period, determine annual compliance using the procedures in paragraph (a)(13) of this section for existing sources.~~

(i) For ore pretreatment processes, divide the sum of mercury mass emissions (in pounds) from all ~~roasting operations and~~ autoclaves during the number of full months between the compliance date and the initial compliance test by the sum of the total amount of gold mine ore processed (in million tons) in these process units during those same full months following the compliance date. ~~Or, if a previous test is used to determine initial compliance, pursuant to paragraph (a)(6) of this section, then the same 3 to 12 full months of production data (i.e., million tons of ore) and hours of operation referred to in paragraph (a)(6) of this section, must be used to determine the emissions in pounds of mercury per million tons of ore.~~

(ii) For carbon processes with mercury retorts, divide the sum of mercury mass emissions (in pounds) from all carbon kilns, preg tanks, electrowinning, mercury retorts, and melt furnaces during the initial number of full months between the compliance date and the initial compliance tests by the total amount of concentrate (in tons) processed in these process units during those same full months following the compliance date. ~~If a previous test is used to determine initial compliance, pursuant to paragraph (a)(6) of this section, then the same 3 to 12 full months of production data (*i.e.*, tons of concentrate) and hours of operation referred to in paragraph (a)(6) of this section, must be used to determine the emissions in pounds of mercury per tons of concentrate.~~

~~(iii) For carbon processes without mercury retorts, divide the sum of mercury mass emissions (in pounds) from all carbon kilns, preg tanks, electrowinning, and melt furnaces during the initial number of full months between the compliance date and the initial compliance tests by the total amount of concentrate (in tons) processed in these process units during those same full months following the compliance date. If a previous test is used to determine initial compliance, pursuant to paragraph (a)(6) of this section, then the same 3 to 12 full months of production data (*i.e.*, tons of concentrate) and hours of operation referred to in paragraph (a)(6) of this section, must be used to determine the emissions in pounds of mercury per tons of concentrate.~~

~~(iv) For non-carbon concentrate processes, divide the sum of mercury mass emissions (in pounds) from mercury retorts and melt furnaces during the initial number of full months between the compliance date and the initial compliance tests by the total amount of concentrate (in tons) processed in these process units during those same full months following the compliance date. If a previous test is used to determine initial compliance, pursuant to paragraph (a)(6) of this section, then the same 3 to 12 full months of production data (*i.e.*, tons of concentrate) and hours of operation referred to in paragraph (a)(6) of this section, must be used to determine the emissions in pounds of mercury per tons of concentrate.~~

(13) After the initial compliance test, calculate the emissions from each new and existing affected source for each 12-month period preceding each subsequent compliance test in pounds of mercury per ton of process input using the procedures in paragraphs (a)(13)(i) through (iv) of this section to determine compliance with the emission standards in §63.11645.

(i) For ore pretreatment processes, divide the sum of mercury mass emissions (in pounds) from all ~~roasting operations and~~ autoclaves in the 12-month period preceding a compliance test by the sum of the total amount of gold mine ore processed (in million tons) in that 12-month period.

(ii) For carbon processes with mercury retorts, divide the sum of mercury mass emissions (in pounds) from all carbon kilns, preg tanks, electrowinning, mercury retorts, and melt furnaces in the 12-month period preceding a compliance test by the total amount of concentrate (in tons) processed in these process units in that 12-month period.

~~(iii) For carbon processes without mercury retorts, divide the sum of mercury mass emissions (in pounds) from all carbon kilns, preg tanks, electrowinning, and melt furnaces in the 12-month period preceding a compliance test by the total amount of concentrate (in tons) processed in these process units in that 12-month period.~~

~~(iv) For non-carbon concentrate processes, divide the sum of mercury mass emissions (in pounds) from mercury retorts and melt furnaces in the 12-month period preceding a compliance test by the total amount of concentrate (in tons) processed in these process units in that 12-month period.~~

(b) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Midas Gold will be required to conduct mercury compliance emission tests within 180 days of startup of the two affected sources. The process units to be tested will be the Autoclave, the Carbon Regeneration Kiln, the Electrowinning Cells and Pregnant Solution Tank (combined stack), the Mercury Retort and the Melting Furnace. The compliance tests will be repeated annually thereafter. Compliance with the emission standards in §63.11645(e) and (f) for the ore pretreatment processes affected source and the carbon processes with mercury retorts affected source, respectively, will be determined according to the highlighted methods and procedures in §63.11646(a)(1)-(13). The affected sources will be required to operate consistent with good air pollution control practices per §63.11646(b).

§63.11647 What are my monitoring requirements?

~~(a) Except as provided in paragraph (a)(5) of this section, you must monitor each roaster for mercury emissions using one of the procedures in paragraphs (a)(1), (a)(2), or (a)(3) of this section and establish operating limits for mercury concentration as~~

~~described in paragraph (a)(4) of this section.~~

~~(1) Perform sampling and analysis of the roaster's exhaust for mercury concentration using EPA Performance Specification 12B (40 CFR part 60, appendix B and Procedure 5 of appendix F) or EPA Method 30B (40 CFR part 60, appendix A-8) at least twice per month. A minimum of two measurements must be taken per month that are at least 11 days apart from other consecutive tests. The mercury concentration must be maintained below the operating limit established in paragraph (a)(4) of this section. The results of the sampling must be obtained within 72 hours of the time the sample is taken.~~

~~(i) To determine the appropriate sampling duration, you must review the available data from previous stack tests to determine the upper 99th percentile of the range of mercury concentrations in the exit stack gas. Based on this upper end of expected concentrations, select an appropriate sampling duration that is likely to provide a valid sample and not result in breakthrough of the sampling tubes. If breakthrough of the sampling tubes occurs, you must re-sample within 7 days using a shorter sampling duration.~~

~~(ii) If any mercury concentration measurement from the twice per month sampling with PS 12B or Method 30B is higher than the operating limit, the exceedance must be reported to the permit authority as a deviation and corrective actions must be implemented within 48 hours upon receipt of the sampling results. Moreover, within 96 hours of the exceedance, the owner or operator must measure the concentration again (with PS 12B (40 CFR part 60, appendix B and Procedure 5 of appendix F), Method 30B or Method 29 (40 CFR part 60, appendix A-8), or ASTM D6784(incorporated by reference—see §63.14)) and demonstrate to the permit authority that the mercury concentration is no higher than the operating limit, or inform the permit authority that the limit continues to be exceeded. If the measured mercury concentration exceeds the operating limit for mercury concentration after these 96 hours, the exceedance must be reported as a deviation within 24 hours to the permitting authority. The owner or operator must conduct a full compliance test pursuant to §63.11646(a) for the roaster operations within 40 days to determine if the affected source is in compliance with the MACT emission standard. For facilities that have roasters and autoclaves, the owner or operator can use the results of the previous compliance test for the autoclaves to determine the emissions for those process units to be used in the calculations of the emissions for the affected source. If the source is determined to be in compliance, the compliance test may also be used to establish a new operating limit for mercury concentration (in accordance with paragraph (e) of this section).~~

~~(2) Install, operate, calibrate, and maintain a continuous emissions monitoring system (CEMS) to continuously measure the mercury concentration in the final exhaust stream from each roaster according to the requirements of Performance Specification 12A (40 CFR part 60, appendix B) except that calibration standards traceable to the National Institute of Standards and Technology are not required. You must perform a data accuracy assessment of the CEMS according to section 5 of Appendix F in part 60 and follow the applicable monitoring requirements in §63.8 as provided in Table 1 to subpart EEEEEEE.~~

~~(i) You must continuously monitor the daily average mercury concentration from the roaster and maintain the daily average concentration below the operating limit established in paragraph (a)(4) of this section.~~

~~(ii) If the daily average mercury concentration from the CEMs is higher than the operating limit, the exceedance must be reported to the permit authority as a deviation and corrective actions must be implemented within 48 hours upon receipt of the sampling results. Moreover, within 96 hours of the exceedance, the owner or operator must measure the concentration again (with the CEMs (40 CFR part 60, appendix B and Procedure 5 of appendix F) and demonstrate to the permit authority that the mercury concentration is no higher than the operating limit, or inform the permit authority that the limit continues to be exceeded. If the measured mercury concentration exceeds the operating limit for mercury concentration after these 96 hours, the exceedance must be reported as a deviation within 24 hours to the permitting authority, and the owner or operator must conduct a full compliance test pursuant to §63.11646(a) for the roaster operations within 40 days to determine if the affected source is in compliance with the MACT emission standard. For facilities that have roasters and autoclaves, the owner or operator can use the results of the previous compliance test for the autoclaves to determine the emissions for those process units to be used in the calculations of the emissions for the affected source. If the source is determined to be in compliance, the compliance test results may also be used to establish a new operating limit for mercury concentration (in accordance with paragraph (e) of this section).~~

~~(iii) You must submit a monitoring plan that includes quality assurance and quality control (QA/QC) procedures sufficient to demonstrate the accuracy of the CEMS to your permitting authority for approval 180 days prior to your initial compliance test. At a minimum, the QA/QC procedures must include daily calibrations and an annual accuracy test for the CEMS.~~

~~(3) Continuously measure the mercury concentration in the final exhaust stream from each roaster using EPA Performance Specification 12B (40 CFR part 60 appendix B and Procedure 5 of appendix F).~~

~~(i) You must continuously measure the mercury concentration in the roaster exhaust and maintain the average daily mercury concentration below the operating limit established in paragraph (a)(4) of this section. To determine the appropriate sampling duration, you must review the available data from previous stack tests to determine the upper 99th percentile of the range of mercury concentrations in the exit stack gas. Based on this upper end of expected concentrations, select an appropriate sampling duration that is likely to provide a valid sample and not result in breakthrough of the sampling tubes. If~~

~~breakthrough of the sampling tubes occurs, you must re-sample within 7 days using a shorter sampling duration.~~

~~(ii) If the daily average mercury concentration is higher than the operating limit, the exceedance must be reported to the permit authority as a deviation and corrective actions must be implemented within 48 hours upon receipt of the sampling results. Moreover, within 96 hours of the exceedance, the owner or operator must measure the concentration again with PS-12B (40 CFR part 60, appendix B and Procedure 5 of appendix F), Method 30B or Method 29 (40 CFR part 60, appendix A-8), or ASTM D6784(incorporated by reference—see §63.14) and demonstrate to the permit authority that the mercury concentration is no higher than the operating limit, or inform the permit authority that the limit continues to be exceeded. If the measured mercury concentration exceeds the operating limit for mercury concentration after these 96 hours, the exceedance must be reported as a deviation within 24 hours to the permitting authority and the owner or operator must conduct a full compliance test pursuant to §63.11646(a) for the roaster operations within 40 days to determine if the affected source is in compliance with the MACT emission standard. For facilities that have roasters and autoclaves, the owner or operator can use the results of the previous compliance test for the autoclaves to determine the emissions for those process units to be used in the calculations of the emissions for the affected source. If the source is determined to be in compliance, the compliance test results may also be used to establish a new operating limit for mercury concentration (in accordance with paragraph (e) of this section).~~

~~(4) Use Equation (2) of this section to establish an upper operating limit for mercury concentration as determined by using the procedures in paragraphs (a)(1), (a)(2), or (a)(3) of this section concurrently while you are conducting your annual compliance performance stack tests according to the procedures in §63.11646(a).~~

$$OLR = C_{test} * (EL/CT) \qquad \text{(Eq 2)}$$

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~~Where:~~

~~OLR = mercury concentration operating limit for the roaster (or roasters that share a common stack) (in micrograms per cubic meter);~~

~~C_{test} = average mercury concentration measured by the monitoring procedures (PS-12A or PS-12B or 30B) during the compliance performance stack test (in micrograms per cubic meter);~~

~~EL = emission standard for ore pretreatment processes (in lb/million tons of ore);~~

~~CT = compliance test results for ore pretreatment processes (in lb/million tons of ore).~~

~~(5) For roasters that utilize calomel-based mercury control systems for emissions controls, you are not required to perform the monitoring for mercury emissions in paragraphs (a)(1), (a)(2), or (a)(3) of this section if you demonstrate to the satisfaction of your permitting authority that mercury emissions from the roaster are less than 10 pounds of mercury per million tons of ore throughput. If you make this demonstration, you must conduct the parametric monitoring as described below in paragraphs (b) and (c) of this section.~~

~~(i) The initial demonstration must include three or more consecutive independent stack tests for mercury at least one month apart on the roaster exhaust stacks. Subsequent demonstrations may be based upon the single stack test required in paragraph (a) of section §63.11646. The results of each of the tests must be less than 10 pounds of mercury per million tons of ore. The testing must be performed according to the procedures in §63.11646(a)(1) through (a)(4) to determine mercury emissions in pounds per hour.~~

~~(ii) Divide the mercury emission rate in pounds per hour by the ore throughput rate during the test expressed in millions of tons per hour to determine the emissions in pounds per million tons of ore.~~

~~(b) For facilities with roasters and a calomel-based mercury control system that choose to monitor for mercury emissions using the procedures in paragraph (a)(1) of this section or that qualify for and choose to follow the requirements in paragraph (a)(5) of this section, you must establish operating parameter limits for scrubber liquor flow (or line pressure) and scrubber inlet gas temperature and monitor these parameters. You may establish your operating parameter limits from the initial compliance test, according to the manufacturer's specifications, or based on limits established by the permitting authority. If you choose to establish your operating parameter limits from the initial compliance test, monitor the scrubber liquor flow (or line pressure) and scrubber inlet gas temperature during each run of your initial compliance test. The minimum operating limit for scrubber liquor flow rate (or line pressure) is either the lowest value during any run of the initial compliance test or 10 percent less than the average value measured during the compliance test, and your maximum scrubber inlet temperature limit is the highest temperature measured during any run of the initial compliance test or 10 percent higher than the average value measured during the compliance test. You must monitor the scrubber liquor flow rate (or line pressure) and scrubber inlet gas temperature hourly and maintain the scrubber liquor flow (or line pressure) at or above the established operating parameter and maintain the inlet gas temperature below the established operating parameter limit.~~

~~(c) For facilities with roasters and a calomel-based mercury control system that choose to monitor for mercury emissions using the procedures in paragraph (a)(1) of this section or that qualify for and follow the requirements in paragraph (a)(5) of this section, you must establish operating parameter ranges for mercuric ion and chloride ion concentrations or for oxidation-~~

~~reduction potential and pH using the procedures in paragraph (c)(1) or (c)(2) of this section respectively.~~

~~(1) Establish the mercuric ion concentration and chloride ion concentration ranges for each calomel-based mercury control system. The mercuric ion concentration and chloride ion concentration ranges for each calomel-based mercury control system must be based on the manufacturer's specifications, or based on approval by your permitting authority. Measure the mercuric ion concentration and chloride ion concentrations at least once during each run of your initial compliance test. The measurements must be within the established concentration range for mercuric ion concentration and chloride ion concentration. Subsequently, you must sample at least once daily and maintain the mercuric ion concentration and chloride ion concentrations within their established range.~~

~~(2) Establish the oxidation reduction potential and pH range for each calomel-based mercury control system. The oxidation reduction potential and pH range for each calomel-based mercury control system must be based on the manufacturer's specifications, or based on approval by your permitting authority. Install monitoring equipment to continuously monitor the oxidation reduction potential and pH of the calomel-based mercury control system scrubber liquor. Measure the oxidation reduction potential and pH of the scrubber liquor during each run of your initial compliance test. The measurements must be within the established range for oxidation reduction potential and pH. Subsequently, you must monitor the oxidation reduction potential and pH of the scrubber liquor continuously and maintain it within the established operating range.~~

~~(d) If you have an exceedance of a control device operating parameter range provided in paragraphs (b) or (c) of this section, you must take corrective action and bring the parameters back into the established parametric ranges. If the corrective actions taken following an exceedance do not result in the operating parameter value being returned within the established range within 48 hours, a mercury concentration measurement (with PS 12B or PS 12A CEMS (40 CFR part 60, appendix B and Procedure 5 of appendix F), Method 30B or Method 29 (40 CFR part 60, appendix A-8), or ASTM D6784 (incorporated by reference—see §63.14)) must be made to determine if the operating limit for mercury concentration is being exceeded. The measurement must be performed and the mercury concentration determined within 48 hours (after the initial 48 hours, or a total of 96 hours from the time the parameter range was exceeded). If the measured mercury concentration meets the operating limit for mercury concentration established under §63.11647(a)(4), the corrective actions are deemed successful, and the owner or operator can request the permit authority to establish a new limit or range for the parameter. If the measured mercury concentration exceeds the operating limit for mercury concentration after these 96 hours, the exceedance must be reported as a deviation within 24 hours to the permitting authority and the owner or operator must conduct a full compliance test pursuant to §63.11646(a) for the roaster operations within 40 days to determine if the affected source is in compliance with the MACT emission standard. For facilities that have roasters and autoclaves, the owner or operator can use the results of the previous compliance test for the autoclaves to determine the emissions for those process units to be used in the calculations of the emissions for the affected source. If the source is determined to be in compliance with the MACT emission standard, the compliance test may also be used to establish a new operating limit for mercury concentration (see paragraph (e) of this section).~~

~~(e) You may submit a request to your permitting authority for approval to change the operating limits established under paragraph (a)(4) of this section for the monitoring required in paragraph (a)(1),(a)(2), or (a)(3) of this section. In the request, you must demonstrate that the proposed change to the operating limit detects changes in levels of mercury emission control. An approved change to the operating limit under this paragraph only applies until a new operating limit is established during the next annual compliance test.~~

(f) You must monitor each process unit at each new and existing affected source that uses a carbon adsorber to control mercury emissions using the procedures in paragraphs (f)(1) or (f)(2) of this section. A carbon adsorber may include a fixed carbon bed, carbon filter packs or modules, carbon columns, and other variations.

~~(1) Continuously sample and analyze the exhaust stream from the carbon adsorber for mercury using Method 30B (40 CFR part 60, appendix A-8) for a duration of at least the minimum sampling time specified in Method 30B and up to one week that includes the period of the annual performance test.~~

~~(i) Establish an upper operating limit for the process as determined using the mercury concentration measurements from the sorbent trap (Method 30B) as calculated from Equation (3) of this section.~~

$$OLC = C_{trap} * (EL/CT) \qquad \text{(Eq 3)}$$

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~~Where:~~

~~OLC = mercury concentration operating limit for the carbon adsorber control device on the process as measured using the sorbent trap, (micrograms per cubic meter);~~

~~C_{trap} = average mercury concentration measured using the sorbent trap during the week that includes the compliance performance test, (micrograms per cubic meter);~~

~~EL = emission standard for the affected sources (lb/ton of concentrate);~~

~~CT = compliance test results for the affected sources (lb/ton of concentrate).~~

~~(ii) Sample and analyze the exhaust stream from the carbon adsorber for mercury at least monthly using Method 30B (40 CFR part 60, appendix A-8). When the mercury concentration reaches 75 percent of the operating limit, begin weekly sampling and analysis. When the mercury concentration reaches 90 percent of the operating limit, replace the carbon in the carbon adsorber within 30 days. If mercury concentration exceeds the operating limit, change the carbon in the carbon adsorber within 30 days and report the deviation to your permitting authority.~~

(2) Conduct an initial sampling of the carbon in the carbon bed for mercury 90 days after the replacement of the carbon. A representative sample must be collected from the inlet of the bed and the exit of the bed and analyzed using SW-846 Method 7471B (incorporated by reference—see §63.14). The depth to which the sampler is inserted must be recorded. The design capacity is established by calculating the average carbon loading from the inlet and outlet measurements. Sampling and analysis of the carbon bed for mercury must be performed quarterly thereafter. When the carbon loading reaches 50 percent of the design capacity of the carbon, monthly sampling must be performed until 90 percent of the carbon loading capacity is reached. The carbon must be removed and replaced with fresh carbon no later than 30 days after reaching 90 percent of capacity. For carbon designs where there may be multiple carbon columns or beds, a representative sample may be collected from the first and last column or bed instead of the inlet or outlet. If the carbon loading exceeds the design capacity of the carbon, change the carbon within 30 days and report the deviation to your permitting authority.

(g) You must monitor gas stream temperature at the inlet to the carbon adsorber for each process unit (*i.e.,* carbon kiln, melt furnace, *etc.*) equipped with a carbon adsorber. Establish a maximum value for the inlet temperature either during the annual performance test (required in §63.11646(a)), according to the manufacturer's specifications, or as approved by your permitting authority. If you choose to establish the temperature operating limit during the performance test, establish the temperature operating limit based on either the highest reading during the test or at 10 °F higher than the average temperature measured during the performance test. Monitor the inlet temperature once per shift. If an inlet temperature exceeds the temperature operating limit, you must take corrective actions to get the temperature back within the parameter operating limit within 48 hours. If the exceedance persists, within 144 hours of the exceedance, ~~you must sample and analyze the exhaust stream from the carbon adsorber using Method 30B (40 CFR part 60, appendix A-8) and compare to an operating limit (calculated pursuant to (f)(1)(i)) or~~ you must conduct carbon sampling pursuant to (f)(2) of this section. If ~~the concentration measured with Method 30B is below 90 percent of the operating limit or~~ the carbon sampling results are below 90 percent of the carbon loading capacity, you may set a new temperature operating limit 10 °F above the previous operating limit or at an alternative level approved by your permit authority. If the concentration is ~~above 90 percent of the operating limit or~~ above 90 percent of the carbon loading capacity you must change the carbon in the bed within 30 days and report the event to your permitting authority, and reestablish an appropriate maximum temperature limit based on approval of your permit authority.

(h) For each wet scrubber at each new and existing affected source not followed by a mercury control system, you must monitor the water flow rate (or line pressure) and pressure drop. Establish a minimum value as the operating limit for water flow rate (or line pressure) and pressure drop either during the performance test required in §63.11646(a), according to the manufacturer's specifications, or as approved by your permitting authority. If you choose to establish the operating limit based on the results of the performance test, the new operating limit must be established based on either the lowest value during any test run or 10 percent less than the average value measured during the test. For wet scrubbers on an autoclave, establish the pressure drop range according to manufacturer's specifications. You must monitor the water flow rate and pressure drop once per shift and take corrective action within 24 hours if any daily average is less than the operating limit. If the parameters are not in range within 72 hours, the owner or operator must report the deviation to the permitting authority and perform a compliance test for the process unit(s) controlled with the wet scrubber that has the parameter exceedance within 40 days to determine if the affected source is in compliance with the MACT limit. For the other process units included in the affected source, the owner or operator can use the results of the previous compliance test to determine the emissions for those process units to be used in the calculations of the emissions for the affected source.

(i) You may conduct additional compliance tests according to the procedures in §63.11646 and re-establish the operating limits required in paragraphs ~~(a) through (c) and~~ (f) through (h) of this section at any time. You must submit a request to your permitting authority for approval to re-establish the operating limits. In the request, you must demonstrate that the proposed change to the operating limit detects changes in levels of mercury emission control. An approved change to the operating limit under this paragraph only applies until a new operating limit is established during the next annual compliance test.

Midas Gold is not proposing to operate a roaster, therefore the §63.11647(a)-(e) monitoring requirements will not apply. The Carbon Regeneration Kiln, the Electrowinning Cells and Pregnant Solution Tank combined stack, the Mercury Retort and the Melting Furnace will each have a carbon adsorber to control mercury. Each carbon adsorber will be monitored per §63.11647(f)(2) with an initial sampling of the carbon, continued sampling and analysis and replacement of the carbon as described. For each sampling of the carbon, the average carbon loading will be calculated from the inlet and outlet measurements and compared to the carbon loading capacity provided by the manufacturer. The gas stream temperature at the inlet of each carbon adsorber will be monitored, a maximum value will be established, and corrective actions will be taken for any exceedance per the highlighted portions of §63.11647(g).

The Autoclave will be controlled by a wet scrubber not followed by a mercury control system, therefore §63.11647(h) will apply. The Autoclave wet scrubber water flow rate and pressure drop will be monitored, operating limits will be established, and corrective actions will be taken for any exceedance per §63.11647(h). The Carbon Regeneration Kiln will also be controlled by a wet scrubber, however the wet scrubber will be followed by a mercury control system (carbon adsorber), therefore §63.11647(h) will not apply to the kiln.

The carbon adsorber and wet scrubber operating limits may be re-established per §63.11647(i).

§63.11648 What are my notification, reporting, and recordkeeping requirements?

(a) You must submit the Initial Notification required by §63.9(b)(2) ~~no later than 120 calendar days after the date of publication of the final rule in the FEDERAL REGISTER or~~ within 120 days after the source becomes subject to the standard. The Initial Notification must include the information specified in §63.9(b)(2)(i) through (b)(2)(iv).

(b) You must submit an initial Notification of Compliance Status as required by §63.9(h).

(c) If a deviation occurs during a semiannual reporting period, you must submit a deviation report to your permitting authority according to the requirements in paragraphs (c)(1) and (2) of this section.

(1) The first reporting period covers the period beginning on the compliance date specified in §63.11641 and ending on June 30 or December 31, whichever date comes first after your compliance date. Each subsequent reporting period covers the semiannual period from January 1 through June 30 or from July 1 through December 31. Your deviation report must be postmarked or delivered no later than July 31 or January 31, whichever date comes first after the end of the semiannual reporting period.

(2) A deviation report must include the information in paragraphs (c)(2)(i) through (c)(2)(iv) of this section.

(i) Company name and address.

(ii) Statement by a responsible official, with the official's name, title, and signature, certifying the truth, accuracy and completeness of the content of the report.

(iii) Date of the report and beginning and ending dates of the reporting period.

(iv) Identification of the affected source, the pollutant being monitored, applicable requirement, description of deviation, and corrective action taken.

(d) If you had a malfunction during the reporting period, the compliance report required in §63.11648(b) *[It is assumed this reference is a typographical error and should be §63.11648(c)]* must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.11646(b), including actions taken to correct a malfunction.

(e) You must keep the records specified in paragraphs (e)(1) through (e)(3) of this section. The form and maintenance of records must be consistent with the requirements in section 63.10(b)(1) of the General Provisions.

(1) As required in §63.10(b)(2)(xiv), you must keep a copy of each notification that you submitted to comply with this subpart and all documentation supporting any Initial Notification, Notification of Compliance Status, and semiannual compliance certifications that you submitted.

(2) You must keep the records of all performance tests, measurements, monitoring data, and corrective actions required by §§63.11646 and 63.11647, and the information identified in paragraphs (c)(2)(i) through (c)(2)(vi) of this section for each corrective action required by §63.11647.

(i) The date, place, and time of the monitoring event requiring corrective action;

(ii) Technique or method used for monitoring;

(iv) Operating conditions during the activity;

(v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation; and

(vi) Maintenance or corrective action taken (if applicable).

(3) You must keep records of operating hours for each process as required by §63.11646(a)(5) and records of the monthly quantity of ore and concentrate processed or produced as required by §63.11646(a)(10).

(f) Your records must be in a form suitable and readily available for expeditious review, according to §63.10(b)(1). As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each recorded action. You must keep each record onsite for at least 2 years after the date of each recorded action according to §63.10(b)(1). You may keep the records offsite for the remaining 3 years.

(g) After December 31, 2011, within 60 days after the date of completing each performance evaluation conducted to demonstrate compliance with this subpart, the owner or operator of the affected facility must submit the test data to EPA by entering the data electronically into EPA's WebFIRE data base through EPA's Central Data Exchange. The owner or operator of an affected facility shall enter the test data into EPA's data base using the Electronic Reporting Tool or other compatible electronic spreadsheet. Only performance evaluation data collected using methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

Midas Gold will be subject to all notification, reporting and recordkeeping requirements in §63.11648.

Other Requirements and Information

§63.11650 What General Provisions apply to this subpart?

Table 1 to this subpart shows which parts of the General Provisions in §§63.1 through 63.16 apply to you.

See Table 1 of this subpart for the applicable General Provisions to this subpart.

§63.11651 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2, and in this section as follows:

Autoclave means a pressure oxidation vessel that is used to treat gold ores (primarily sulfide refractory ore) and involves pumping a slurry of milled ore into the vessel which is highly pressurized with oxygen and heated to temperatures of approximately 350° to 430 °F.

~~*Calomel-based mercury control system* means a mercury emissions control system that uses scrubbers to remove mercury from the gas stream of a roaster or combination of roasters by complexing the mercury from the gas stream with mercuric chloride to form mercurous chloride (calomel). These scrubbers are also referred to as "mercury scrubbers."~~

Carbon adsorber means a control device consisting of a single fixed carbon bed, multiple carbon beds or columns, carbon filter packs or modules, and other variations that uses activated carbon to remove pollutants from a gas stream.

Carbon kiln means a kiln or furnace where carbon is regenerated by heating, usually in the presence of steam, after the gold has been stripped from the carbon.

Carbon processes with mercury retorts means the affected source that includes carbon kilns, preg tanks, electrowinning cells, mercury retorts, and melt furnaces at gold mine ore processing and production facilities that use activated carbon, or resins that can be used as a substitute for activated carbon, to recover (adsorb) gold from the pregnant cyanide solution.

~~*Carbon processes without mercury retorts* means the affected source that includes carbon kilns, preg tanks, electrowinning cells, and melt furnaces, but has no retorts, at gold mine ore processing and production facilities that use activated carbon, or resins that can be used as a substitute for activated carbon, to recover (adsorb) gold from the pregnant cyanide solution.~~

Concentrate means the sludge-like material that is loaded with gold along with various other metals (such as silver, copper, and mercury) and various other substances, that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes. *Concentrate* is measured as the input to mercury retorts, or for facilities without mercury retorts, as the input to melt furnaces before any drying takes place. For facilities without mercury retorts or melt furnaces, *concentrate* is measured as the quantity shipped.

Deviation means any instance where an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emissions limitation or work practice standard;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Exceeds any operating limit established under this subpart.

Electrowinning means a process that uses induced voltage on anode and cathode plates to remove metals from the continuous flow of solution, where the gold in solution is plated onto the cathode. Steel wool is typically used as the plating surface.

Electrowinning Cells means a tank in which the electrowinning takes place.

Gold mine ore processing and production facility means any industrial facility engaged in the processing of gold mine ore that uses any of the following processes: ~~Roasting operations~~, autoclaves, carbon kilns, preg tanks, electrowinning, mercury retorts, or melt furnaces. Laboratories (see CAA section 112(c)(7)), ~~individual prospectors, and very small pilot scale mining~~

~~operations that processes or produces less than 100 pounds of concentrate per year~~ are not a gold mine ore processing and production facility. ~~A facility that produces primarily metals other than gold, such as copper, lead, zinc, or nickel (where these metals other than gold comprise 95 percent or more of the total metal production) that may also recover some gold as a byproduct is not a gold mine ore processing and production facility. Those facilities whereby 95 percent or more of total mass of metals produced are metals other than gold, whether final metal production is onsite or offsite, are not part of the gold mine ore processing and production source category.~~

Melt furnace means a furnace (typically a crucible furnace) that is used for smelting the gold-bearing material recovered from mercury retorting, or the gold-bearing material from electrowinning, the Merrill-Crowe process, or other processes for facilities without mercury retorts.

Mercury retort means a vessel that is operated under a partial vacuum at approximately 1,100° to 1,300 °F to remove mercury and moisture from the gold bearing sludge material that is recovered from electrowinning, the Merrill-Crowe process, or other processes. Mercury retorts are usually equipped with condensers that recover liquid mercury during the processing.

~~*Merrill-Crowe process* means a precipitation technique using zinc oxide for removing gold from a cyanide solution. Zinc dust is added to the solution, and gold is precipitated to produce a concentrate.~~

~~*Non-carbon concentrate processes* means the affected source that includes mercury retorts and melt furnaces at gold mine ore processing and production facilities that use the Merrill-Crowe process or other processes and do not use carbon (or resins that substitute for carbon) to recover (adsorb) gold from the pregnant cyanide solution.~~

~~*Ore dry grinding* means a process in which the gold ore is ground and heated (dried) prior to additional preheating or prior to entering the roaster.~~

~~*Ore preheating* means a process in which ground gold ore is preheated prior to entering the roaster.~~

Ore pretreatment processes means the affected source that includes ~~roasting operations and~~ autoclaves that are used to pre-treat gold mine ore at gold mine ore processing and production facilities prior to the cyanide leaching process.

Pregnant solution tank (or preg tank) means a storage tank for pregnant solution, which is the cyanide solution that contains gold-cyanide complexes that is generated from leaching gold ore with cyanide solution.

Pregnant cyanide solution means the cyanide solution that contains gold-cyanide complexes that are generated from leaching gold ore with a dilute cyanide solution.

~~*Quenching* means a process in which the hot calcined ore is cooled and quenched with water after it leaves the roaster.~~

~~*Roasting operation* means a process that uses an industrial furnace in which milled ore is combusted across a fluidized bed to oxidize and remove organic carbon and sulfide mineral grains in refractory gold ore. The emissions points of the roasting operation subject to this subpart include ore dry grinding, ore preheating, the roaster stack, and quenching.~~

The highlighted definitions in §63.11651 will apply to the Stibnite Gold Project.

§63.11652 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority, such as your state, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your state, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out if this subpart is delegated to your state, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a state, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the state, local, or tribal agency.

(c) The authorities that will not be delegated to state, local, or tribal agencies are listed in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the applicability requirements in §63.11640, the compliance date requirements in §63.11641, and the applicable standards in §63.11645.

(2) Approval of an alternative nonopacity emissions standard under §63.6(g).

(3) Approval of a major change to a test method under §63.7(e)(2)(ii) and (f). A “major change to test method” is defined in §63.90(a).

(4) Approval of a major change to monitoring under §63.8(f). A “major change to monitoring” is defined in §63.90(a).

(5) Approval of a waiver of recordkeeping or reporting requirements under §63.10(f), or another major change to recordkeeping/reporting. A “major change to recordkeeping/reporting” is defined in §63.90(a).

This implementation and enforcement of this subpart per §63.11652 will apply.

~~§63.11653 [Reserved]~~

Table 1 to Subpart EEEEEEE of Part 63—Applicability of General Provisions to Subpart EEEEEE

As stated in §63.11650, you must comply with the applicable General Provisions requirements according to the following table

Citation	Subject	Applies to subpart EEEEEEE	Explanation
§63.1(a)(1), (a)(2), (a)(3), (a)(4), (a)(6), (a)(10)-(a)(12), (b)(1), (b)(3), (c)(1), (c)(2), (c)(5), (e)	Applicability	Yes	
~~§63.1(a)(5), (a)(7)-(a)(9), (b)(2), (c)(3), (c)(4), (d)~~	~~Reserved~~	~~No~~	
§63.2	Definitions	Yes	
§63.3	Units and Abbreviations	Yes	
§63.4	Prohibited Activities and Circumvention	Yes	
§63.5	Preconstruction Review and Notification Requirements	Yes	
§63.6(a), (b)(1)-(b)(5), (b)(7), (c)(1), (c)(2), (c)(5), (e)(1)(iii), (f)(2), (f)(3), (g), (i), (j)	Compliance with Standards and Maintenance Requirements	Yes	
~~§63.6(e)(1)(i) and (ii), (e)(3), and (f)(1)~~	~~Startup, Shutdown and Malfunction Requirements (SSM)~~	~~No~~	~~Subpart EEEEEEE standards apply at all times.~~
~~§63.6(h)(1), (h)(2), (h)(4),(h)(5)(i), (ii), (iii) and (v), (h)(6)-(h)(9)~~	~~Compliance with Opacity and Visible Emission Limits~~	~~No~~	~~Subpart EEEEEEE does not contain opacity or visible emission limits.~~
~~§63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv)~~	~~Reserved~~	~~No~~	
§63.7, except (e)(1)	Applicability and Performance Test Dates	Yes	
~~§63.7(e)(1)~~	~~Performance Testing Requirements Related to SSM~~	~~No~~	
§63.8(a)(1), (b)(1), (f)(1)-(5), (g)	Monitoring Requirements	Yes	
~~§63.8(a)(2), (a)(4), (b)(2)-(3), (c), (d), (e), (f)(6), (g)~~	~~Continuous Monitoring Systems~~	~~Yes~~	~~Except cross references to SSM requirements in §63.6(e)(1) and (3) do not apply.~~
~~§63.8(a)(3)~~	~~[Reserved]~~	~~No~~	
§63.9(a), (b)(1), (b)(2)(i)-(v), (b)(4), (b)(5), (c), (d), (e), (g), (h)(1)-(h)(3), (h)(5), (h)(6), (i), (j)	Notification Requirements	Yes	
~~§63.9(f)~~		~~No~~	
~~§63.9(b)(3), (h)(4)~~	~~Reserved~~	~~No~~	
§63.10(a), (b)(1), (b)(2)(vi)-(xiv), (b)(3), (c), (d)(1)-(4), (e), (f)	Recordkeeping and Reporting Requirements	Yes	
~~§63.10(b)(2)(i)-(v), (d)(5)~~	~~Recordkeeping/Reporting Associated with SSM~~	~~No~~	
~~§63.10(c)(2)-(c)(4), (c)(9)~~	~~Reserved~~	~~No~~	
~~§63.11~~	~~Control Device Requirements~~	~~No~~	
§63.12	State Authority and Delegations	Yes	
§§63.13-63.16	Addresses, Incorporation by Reference, Availability of Information, Performance Track Provisions	Yes	

The applicable General Provisions are highlighted in Table 1.

2.0 PROCESS DESCRIPTION

The process description can be found in the “Stibnite Gold Project Air Quality Modeling Report” found in Attachment A of this application.

3.0 PROCESS FLOW DIAGRAM

The process flow diagram can be found in the "Stibnite Gold Project Air Quality Modeling Report" found in Attachment A of this application.

4.0 REGULATORY ANALYSIS

This section provides a regulatory analysis of the applicable Idaho Air Pollution Rules and Federal regulations to the Midas Gold – SGP. In addition, a few Idaho rules and Federal regulations that could appear to be applicable are discussed and an explanation is provided as to why they have been determined to not apply.

4.1 Rules for the Control of Air Pollution in Idaho

Below is a list of Idaho Administrative Code, IDAPA 58 - Department of Environmental Quality Rules that will apply to the Midas Gold – SGP and require a demonstration of compliance. For each applicable Rule, identification of the emission units to which the rule applies and a statement of how Midas Gold will demonstrate compliance is provided.

58.01.01 - RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO

123. CERTIFICATION OF DOCUMENTS.

All documents, as stated in 58.01.01.123, will contain a certification by a Midas Gold responsible official. The certification will state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

157. TEST METHODS AND PROCEDURES.

Midas Gold will follow all testing procedures and requirements specified in 58.01.01.157 for each performance test conducted to comply with the requirements of the PTC or with state or federal regulations.

200. PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT. [200 THROUGH 228]

Midas Gold is proposing to construct a new non-major facility, and therefore, all requirements specific to major facilities or major modifications do not apply.

201. PERMIT TO CONSTRUCT REQUIRED.

In accordance with 58.01.01.201, Midas Gold will obtain a PTC prior to commencing construction of any stationary source.

202. APPLICATION PROCEDURES.

In accordance with 58.01.01.202, Midas Gold is submitting this application for a PTC for a new non-major facility. This application uses the forms furnished by the IDEQ and attempts to provide all required information in the appropriate application sections and attachments.

202.01.a.ii. Schedule for Construction

Midas Gold is seeking a PTC in hopes of commencing construction in June 2021. This schedule is tentative and is primarily dictated by the issuance of the final record of decision on the U.S. Forest Service Environmental Impact Statement.

203. PERMIT REQUIREMENTS FOR NEW AND MODIFIED STATIONARY SOURCES.

In accordance with 58.01.01.203, the "Stibnite Gold Project Air Quality Modeling Report" provided in Attachment A, demonstrates that the proposed Midas Gold – SGP will be in compliance with all applicable emission standards, National Ambient Air Quality Standards (NAAQS), and the TAP increments.

209. PROCEDURE FOR ISSUING PERMITS.

Midas Gold reviewed the procedure for issuing permits with the IDEQ during the pre-application meeting on April 4, 2019.

210. DEMONSTRATION OF PRECONSTRUCTION COMPLIANCE WITH TOXIC STANDARDS.

A detailed analysis of the quantification of TAP emission rates and ambient concentrations, if applicable, as well as a demonstration of preconstruction compliance can be found in the "Stibnite Gold Project Air Quality Modeling Report" found in Attachment A of this application. A summary of the facility-wide potential TAP emissions with a determination of compliance/modeling applicability is provided in Table 5 of the "Stibnite Gold Project Air Quality Modeling Report." Further discussion of the TAP analyses is provided under Sections 585 and 586 below.

210.20. NSPS and NESHAP Sources

In accordance with 58.01.01.210.20.b, TAPs regulated by the EPA at the time of permit issuance under 40 CFR part 60 or 40 CFR part 63, do not require further procedures for demonstrating preconstruction compliance for those TAPs as part of the application process, provided that the PTC contains provisions implementing the applicable federal standards, as requested by Midas Gold.

Diesel internal combustion engine HAP emissions are regulated by NESHAP, Subpart ZZZZ and are, therefore, exempt from further TAP analysis. Midas Gold is proposing to operate three emergency generators (Source IDs EDG1, EDG2, and EDG3) and one fire pump (Source ID EDFP) subject to NESHAP, Subpart ZZZZ. In addition, mercury emissions from the Gold Mine Ore Processing and Production affected sources are regulated by NESHAP, Subpart EEEEEEE (NESHAP, Subpart 7E), and are therefore exempt from further TAP analysis. Midas Gold is

proposing to operate an autoclave (Source ID AC) and refinery (Source IDs CKD, EW, MR, and MF) subject to NESHAP, Subpart 7E.

211. CONDITIONS FOR PERMITS TO CONSTRUCT.

Midas Gold understands that the IDEQ may impose any reasonable conditions upon approval, including conditions, as described in 58.01.01.211.01, for sampling, instrumentation to monitor and record emissions data, instrumentation for ambient monitoring and any other sampling as deemed reasonable. In addition, Midas Gold understands that the IDEQ may cancel a PTC if construction has not begun within two years from date of issuance, or if during the construction, work is suspended for one year. Midas Gold will provide written notification to the IDEQ of the anticipated date of initial start-up and the actual date of initial start-up of the stationary source within the timelines specified in 58.01.01.211.03. Should the IDEQ require performance testing at the SGP, it will be conducted in accordance with 58.01.01.211.04.

212. OBLIGATION TO COMPLY.

In accordance with 58.01.01.212, Midas Gold will comply with all applicable local, state and federal statutes, rules and regulations.

215. MERCURY EMISSION STANDARD FOR NEW OR MODIFIED SOURCES.

In accordance with 58.01.01.215.01, the Midas Gold is exempt from the requirements of 58.01.01.215 as the autoclave (Source ID AC) and refinery (Source IDs CKD, EW, MR, and MF) are within a source category subject to 40 CFR part 63 (i.e., subject to NESHAP, Subpart 7E).

224. PERMIT TO CONSTRUCT APPLICATION FEE.

In accordance with 58.01.01.224, Midas Gold will pay a PTC application fee of $1,000 for this application.

225. PERMIT TO CONSTRUCT PROCESSING FEE.

In accordance with 58.01.01.225, Midas Gold will pay a PTC processing fee in the amount of $7,500 for non-major new sources with an increase of emissions of one hundred tons per year or more. Table 14 provides the total increase of regulated pollutant emissions, excluding fugitive emissions, for the SGP.

Table 14. SGP Regulated Pollutant Emissions Total

Regulated Pollutant	ton/yr *
PM_{10}	56.3
CO	30.5
NO_X	37.9
SO_2	6.5
VOC	4.8
Total	136.0

* Excluding fugitive emissions

226. PAYMENT OF FEES FOR PERMITS TO CONSTRUCT.

In accordance with 58.01.01.226, Midas Gold is submitting the PTC application fee of $1,000 with this application. The PTC processing fee will be paid upon receipt of an assessment from the IDEQ.

300. PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS. [300 through 399]

301. REQUIREMENT TO OBTAIN TIER I OPERATING PERMIT.

The proposed autoclave (Source ID AC) and refinery (Source IDs CKD, EW, MR, and MF) will be subject to the NESHAP, Subpart 7E Gold Mine Ore Processing and Production Area Source Category, and Midas Gold will be required to obtain a Part 70 permit for these emissions units per 63.11640(d). Accordingly, per 58.01.01.006.122.c., the SPG will be a Tier I source for these five emission units. As specified in 58.01.01.301.02.b.iv, Tier I sources not located at major facilities do not require a Tier I operating permit until the source becomes a Tier I source as defined under 58.01.01.006. The Tier I application for applicable sources will be submitted in accordance with 58.01.01.313.01.b.

313. TIMELY APPLICATION.

In accordance with 58.01.01.313.01.b., Midas Gold will submit a complete application for an original Tier I operating permit within twelve months after becoming a Tier I source. 40 CFR 70.3(c)(2) specifies that "[f]or any nonmajor source subject to the part 70 program … the permitting authority shall include in the permit all applicable requirements applicable to emissions units that cause the source to be subject to the part 70 program." Therefore, as further outlined in the EPA's July 10, 1995, *White Paper for Streamlined Development of Part 70 Permit Applications*, only the affected sources are required to be included in a Title V (i.e., Tier I) permit.

400. PROCEDURES AND REQUIREMENTS FOR TIER II OPERATING PERMITS. [400 through 410]

401. TIER II OPERATING PERMIT.

58.01.01.401.02.a.i, requires a Tier II operating permit for any stationary source not subject to Sections 300 through 399 with a PTC which establishes any emission standard different from those in the 58.01.01 rules. At this time, it is believed that Midas Gold will not be required to obtain a Tier II operating permit for the stationary sources not subject to Sections 300 through 399. As discussed above, Midas Gold will submit an application for a Tier I operating permit for the affected sources that are required to obtain a Title V permit. Midas Gold will further discuss the necessary operating permits with the IDEQ after the commencement of operation.

575. AIR QUALITY STANDARDS AND AREA CLASSIFICATION. [575 THROUGH 587]

576. GENERAL PROVISIONS FOR AMBIENT AIR QUALITY STANDARDS.

In accordance with 58.01.01.576, the general provisions for ambient air quality standards will apply to the Midas Gold - SGP.

578. DESIGNATION OF ATTAINMENT, UNCLASSIFIABLE, AND NONATTAINMENT AREAS.

In accordance with 58.01.01.578, the IDEQ has identified Valley County, where the SGP will be located, as in compliance with the NAAQS; therefore, it is classified as an attainment area for all criteria pollutants.

581. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENTS.

The proposed SGP does not have facility-wide emissions of any regulated NSR pollutant that exceed 250 tons per year and is not a major stationary source as defined in 40 CFR 52.21(b)(1)(i). Therefore, PSD requirements, including PSD increments, are not applicable to the SGP.

585. TOXIC AIR POLLUTANTS NON-CARCINOGENIC INCREMENTS.

A comparison of the facility-wide potential uncontrolled emissions for each non-carcinogenic TAP to the applicable TAP non-carcinogenic screening emissions levels (EL) can be found in Table 5 of the "Stibnite Gold Project Air Quality Modeling Report" found in Attachment A of this application. The SGP potential uncontrolled emissions exceed the respective non-carcinogenic screening EL for antimony and sulfuric acid. Therefore, TAP analyses were performed to demonstrate compliance with the Acceptable Ambient Concentrations (AAC, 24 hours averaging period) for these pollutants. Results of these analyses are summarized in Table 1 in Attachment A.

586. TOXIC AIR POLLUTANTS CARCINOGENIC INCREMENTS.

A comparison of the facility-wide potential uncontrolled emissions for each carcinogenic TAP to the applicable TAP carcinogenic screening EL can be found in Table 5 of the "Stibnite Gold Project Air Quality Modeling Report" found in Attachment A of this application. Based on the TAP analysis determination provided in Table 5, the SGP facility-wide potential uncontrolled emissions exceed the respective carcinogenic screening EL for arsenic, cadmium, formaldehyde, and nickel. Therefore, TAP analyses were performed to demonstrate compliance with the Acceptable Ambient Concentrations for Carcinogens (AACC, annual averaging period) for arsenic, cadmium, formaldehyde, and nickel. Results of these analyses are provided in Table 1 of the "Stibnite Gold Project Air Quality Modeling Report".

For the carcinogenic TAPs with facility-wide uncontrolled emissions below the applicable carcinogenic screening EL, per 58.01.01.210.05, no additional compliance demonstration is needed. For arsenic, cadmium, formaldehyde, and nickel, where the uncontrolled ambient concentrations are below the applicable AACC, per 58.01.01.210.06, no additional compliance demonstration is needed.

590. NEW SOURCE PERFORMANCE STANDARDS.

The New Source Performance Standards (NSPS) applicable to the SGP can be found below in Section 4.2 of this application.

591. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS.

The National Emission Standards for Hazardous Air Pollutants (NESHAP) applicable to the SGP can be found below in Section 4.2 of this application.

625. VISIBLE EMISSIONS.

In accordance with 58.01.01.625, Midas Gold will not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period which is greater than twenty percent (20%) opacity as determined by this section. Midas Gold will demonstrate compliance with this rule by conducting periodic visible emissions observations and EPA Method 9 opacity testing, with opacity calculated as specified in 58.01.01.625.04.b, as required in the PTC.

650. RULES FOR CONTROL OF FUGITIVE DUST.

In accordance with 58.01.01.650, Midas Gold will take reasonable precautions to prevent fugitive particulate matter from becoming airborne at the SGP. Midas Gold will develop a Fugitive Dust Control Plan to include good operating practices and reasonable precautions as described in 58.01.01.651.

675. FUEL BURNING EQUIPMENT -- PARTICULATE MATTER. [675 through 681]

676. STANDARDS FOR NEW SOURCES.

In accordance with 58.01.01.676, Midas Gold will not discharge into the atmosphere from any fuel burning equipment with a maximum rated input of 10 MMBtu/hr or more, particulate matter in excess of the concentrations shown below. Table 15 provides the PM standards that apply to each fuel burning equipment proposed to be installed at SGP. The compliance demonstration for the sources greater than 10 MMBtu/hr can be found in the detailed emission inventory conversions worksheet.

677. STANDARDS FOR MINOR AND EXISTING SOURCES.

In accordance with 58.01.01.677, Midas Gold will not discharge into the atmosphere from any fuel burning equipment with a maximum rated input of less than 10 MMBtu/hr, particulate matter in excess of the concentrations shown below. Table 15 provides the PM standards that apply to each fuel burning equipment proposed to be installed at SGP. The compliance demonstration for the sources less than 10 MMBtu/hr can be found in the detailed emission inventory conversions worksheet.

Table 15. SGP Fuel Burning Equipment PM Standards

Source ID	Description	Rating	Fuel	PM Standard gr/dscf	IDAPA 58.01.01 Citation
Sb1	Sb Dryer	2.72 MMBtu/hr	Propane	0.015	§677
ACB	POX Boiler	17 MMBtu/hr	Propane	0.015	§676
CKB	Carbon Regeneration Kiln (Burners)	2.255 MMBtu/hr	Propane	0.015	§677
PV	Propane Vaporizer	0.4 MMBtu/hr	Propane	0.015	§677
HS	Strip Circuit Solution Heater	5 MMBtu/hr	Propane	0.015	§677
H1M	Mine Air Heater #1	4 MMBtu/hr	Propane	0.015	§677
H2M	Mine Air Heater #2	4 MMBtu/hr	Propane	0.015	§677
HM	Mill HVAC Heaters	4 x 1.0 MMBtu/hr	Propane	0.015	§677
HAC	Autoclave HVAC Heater	0.25 MMBtu/hr	Propane	0.015	§677
HR	Refinery HVAC Heater	0.25 MMBtu/hr	Propane	0.015	§677
HA	Admin HVAC Heaters	0.25 MMBtu/hr	Propane	0.015	§677
HMO	Mine Ops. HVAC Heaters	2 x 0.25 MMBtu/hr	Propane	0.015	§677
HTS	Truck Shop HVAC Heaters	2 x 1.0 MMBtu/hr	Propane	0.015	§677
HW	Warehouse HVAC Heaters	3 x 1.0 MMBtu/hr	Propane	0.015	§677
LKC	PFR Shaft Lime Kiln Combustion	22.0 MMBtu/hr	Propane	0.015	§676
EDG1	Camp Emergency Generator	1,000 kW (9.39 MMBtu/hr)	Diesel	0.050	§677
EDG2	Plant Emergency Generator #1	1,000 kW (9.39 MMBtu/hr)	Diesel	0.050	§677

Source ID	Description	Rating	Fuel	PM Standard gr/dscf	IDAPA 58.01.01 Citation
EDG3	Plant Emergency Generator #2	1,000 kW (9.39 MMBtu/hr)	Diesel	0.050	§677
EDFP	Mill Fire Pump	200 kW (1.88 MMBtu/hr)	Diesel	0.050	§677

700. PARTICULATE MATTER -- PROCESS WEIGHT LIMITATIONS. [700 through 703]

In accordance with 58.01.01.700.02, no source shall be required to meet a particulate emission limit of less than one pound per hour.

701. PARTICULATE MATTER -- NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS.

In accordance with 58.01.01.701, Midas Gold will not emit into the atmosphere from any process or process equipment, particulate matter in excess of the amounts shown by the equations in section 701.a and 701.b. This weight limitation does not apply to fuel burning equipment.

Per 58.01.01.006.94, process weight is defined as the total weight of all materials introduced into any source operation which may cause any emissions of particulate matter. Process weight includes solid fuels charged, but does not include liquid and gaseous fuels charged or combustion air. Water which occurs naturally in the feed material shall be considered part of the process weight.

This particulate matter weight limitation will apply to various processes at the SGP. The compliance demonstration for the sources subject can be found in the detailed emission inventory "Process Activity and Emissions" sheets.

725. RULES FOR SULFUR CONTENT OF FUELS.

In accordance with 58.01.01.725, Midas Gold will only use ASTM Grade 2 distillate fuel oil containing no more than 0.5% by weight of sulfur. Midas Gold plans to use ultra-low sulfur diesel with a maximum sulfur content of 15 ppm (0.0015% by weight). They will demonstrate compliance with the distillate fuel oil sulfur content limit by only purchasing ultra-low sulfur diesel.

790. RULES FOR THE CONTROL OF NONMETALLIC MINERAL PROCESSING PLANTS. [790 through 799]

791. GENERAL CONTROL REQUIREMENTS.

In accordance with 58.01.01.791, Midas Gold will take reasonable precautions to prevent the generation of fugitive dust from the nonmetallic mineral processing plant at the SGP.

792. EMISSIONS STANDARDS FOR NONMETALLIC MINERAL PROCESSING PLANTS SUBJECT TO 40 CFR 60, SUBPART OOO.

Midas Gold is proposing to operate a nonmetallic mineral processing plant at the SGP that is subject to NSPS, Subpart OOO. The emission units included in the nonmetallic mineral processing plant are shown in Table 17. As detailed below in Section 4.2 of this application,

Midas Gold will comply with all applicable emissions standards, monitoring requirements, test methods and procedures, and reporting and recordkeeping requirements of Subpart OOO.

4.2 Applicable Federal Regulations

The sections that follow provide an explanation for the NSPS part 60, and the NESHAP part 63 subparts from the Code of Federal Regulations (CFR) that are applicable to the Midas Gold – Stibnite Gold Project. The Federal Rule Applicability (Form FRA) has been provided in Section 1.13 of the application forms, along with the detailed regulatory review.

4.2.1 NSPS, Subpart LL – Standards of Performance for Metallic Mineral Processing Plants

Midas Gold is proposing to operate a metallic mineral processing plant at the Stibnite Gold Project, where they will operate a combination of equipment to produce gold and silver concentrates from ore. Therefore, the provisions of NSPS, Subpart LL will be applicable per §60.380(a). The metallic mineral processing plant will include crushers, conveyor belt transfer points, and a truck unloading station. The proposed metallic mineral processing plant will be subject to the requirements of this subpart as it will commence construction after August 24, 1982, per §60.380(b). Table 16 lists all the affected facilities subject to NSPS, Subpart LL.

Table 16. NSPS, Subpart LL Sources

Source ID	Description	Source Type
OC1	Loader Transfer of Ore to Grizzly	Truck Unloading Station
OC2	Grizzly to Apron Feeder	Conveyor Belt Transfer Point
OC3	Apron Feeder to Dribble Conveyor	Conveyor Belt Transfer Point
OC4	Apron Feeder to Vibrating Grizzly	Conveyor Belt Transfer Point
OC5	Dribble Conveyor to Vibrating Grizzly	Conveyor Belt Transfer Point
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	Conveyor Belt Transfer Point
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	Crusher
OC9	Stockpile Transfers to Reclaim Conveyors	Conveyor Belt Transfer Point
OC10	Reclaim Conveyers to SAG Mill Feed Conveyor	Conveyor Belt Transfer Point
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	Conveyor Belt Transfer Point
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	Crusher
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	Conveyor Belt Transfer Point

Based on the definition found in §60.381, a conveyor belt transfer point means a point in the conveying operation where the metallic mineral or metallic mineral concentrate is transferred to or from a conveyor belt ***except where the metallic mineral is being transferred to a stockpile***. Therefore, Source ID OC8, Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile is not subject to NSPS, Subpart LL.

4.2.2 NSPS, Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

Midas Gold is proposing to operate a nonmetallic mineral processing plant at the Stibnite Gold Project, where they will process limestone. Therefore, the provisions of NSPS, Subpart OOO will be applicable per §60.670(a)(1). The limestone mineral processing will consist of a primary and secondary crusher, a primary and secondary screening operation, a ball mill, storage bins and conveyors. The proposed nonmetallic mineral processing plant will be subject to the requirements of this subpart as it will commence construction after August 31, 1983 per §60.670(e). Table 17 list all the affected facilities subject to NSPS, Subpart OOO.

Table 17. NSPS, Subpart OOO Sources

Source ID	Description	Source Type	Control
LS1	Limestone transfer to Primary Crusher Hopper	Storage Bin	None
LS2	Primary Crushing and Associated Transfers In and Out	Crusher	None
LS3	Primary Screening and Associated Transfers In and Out	Screen	None
LS4	Secondary Crushing and Associated Transfers In and Out	Crusher	None
LS5	Secondary Screening and Associated Transfers In and Out	Screen	None
LS6	Limestone transfer to Ball Mill Feed Bin	Conveyor & Storage Bin	None
LS7	Limestone transfer to Ball Mill Feed Conveyor	Conveyor	None
LS8	Ball Mill Feed transfer to Ball Mill	Conveyor	None
LSBM	Limestone Ball Mill	Grinding Mill	Baghouse (BH3)
LS9	Limestone transfer to Kiln Feed Bin	Conveyor & Storage Bin	None
LS10	Limestone transfer to Lime Kiln Feed Conveyor	Conveyor	None
LS11	Fines Screening and Associated Transfers In and Out	Screen	None
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	Conveyor	None

Per §60.672(d), truck dumping into a feed hopper is exempt from the standards for particulate matter provided in §60.672. Therefore, Source ID LS1, Limestone transfer to Primary Crusher Hopper, is not subject to the emission limits and compliance requirements in Table 3 of NSPS, Subpart OOO.

Midas Gold is also proposing to operate a cement batch plant that will include an aggregate storage bin, which will process nonmetallic minerals, however, the cement batch plant does not meet the definition per §60.671 of a nonmetallic mineral processing plant as it does not include any crushing or grinding. Therefore, Source IDs CAL and CAU, Aggregate Bin Loading and Aggregate Bin Unloading, are not subject to NSPS, Subpart OOO.

In addition, certain construction and maintenance activities during operations may require sized aggregate. To allow for the operational flexibility to produce construction aggregate onsite, Midas Gold is including two portable crushing and screening plants in this application. Each portable plant may include primary and secondary crushers and screens, and multiple conveyors. Each portable plant will be rated at less than 150 ton/hr and therefore exempt from requirements of this subpart per §60.670(c)(2). Therefore, Source IDs PCSP1 and PCSP2, Portable Crushing and Screening Plants 1 and 2, are not subject to NSPS, Subpart OOO.

4.2.3 NSPS, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Midas Gold proposes to own and operate at the Stibnite Gold Project, three emergency stationary compression ignition (CI) internal combustion engines (ICE) that will be subject to NSPS, Subpart IIII per §60.4200(a)(2)(i) as they will commence construction after July 11, 2005, will be manufactured after April 1, 2006, and are not fire pumps. In addition, Midas Gold proposes to own and operate at the Stibnite Gold Project, one stationary fire pump CI ICE, that will be subject to this subpart per §60.4200(a)(2)(ii) as it will commence construction after July 11, 2005, and will be manufactured as a certified NFPA fire pump engine after July 1, 2006. Table 18 list all the sources subject to NSPS, Subpart IIII.

Table 18. NSPS, Subpart IIII Sources

Source ID	Description	Power Rating kW	Displacement
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	1,000	<10 l/cylinder
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	1,000	<10 l/cylinder
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	1,000	<10 l/cylinder
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	200	<10 l/cylinder

4.2.4 NESHAP, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

NESHAP, Subpart ZZZZ, applies to all stationary reciprocating internal combustion engines (RICE) operated at a major or area source of HAP emissions. For new (constructed after June 12, 2006, per §63.6590(a)(2)(iii)) stationary CI RICE operated at an area source of HAP emissions, the compliance requirements of NESHAP, Subpart ZZZZ, are met by complying with the requirements of NSPS, Subpart IIII per §63.6590(c)(1). No further requirements apply under NESHAP.

The Midas Gold proposes to own and operate at the Stibnite Gold Project, three emergency stationary and one stationary fire pump CI ICE that will be subject to NSPS, Subpart IIII. These stationary CI RICEs will be classified as new sources under NESHAP, Subpart ZZZZ, and therefore will meet the requirements of Subpart ZZZZ by meeting the requirements of NSPS, Subpart IIII.

4.2.5 NESHAP, Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

Midas Gold is proposing to operate two Gasoline Dispensing Facilities (GDF) at the Stibnite Gold Project, and as an area source, will be subject to NESHAP, Subpart CCCCCC (NESHAP, Subpart 6C) per §63.11111(a). Each GDF will be an affected source subject to this subpart. It is proposed that the Stibnite Gold Project will have two GDFs, each with a monthly throughput of greater than 10,000 gallons but less than 100,000 gallons and must comply with the requirements in §63.11117 per §63.11111(c). Table 19 list all the sources subject to NESHAP, Subpart 6C.

Table 19. NESHAP, Subpart 6C Sources

Source ID	Description	Capacity gal	Throughput gal/month
TG1	Mine Site Gasoline Tank #1	5,000	20,833
TG2	Mine Site Gasoline Tank #2	5,000	20,833

4.2.6 NESHAP, Subpart EEEEEEE – National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category

Midas Gold is proposing to operate a gold mine ore processing and production facility at the Stibnite Gold Project, and as an area source, will therefore be subject to NESHAP, Subpart EEEEEEE (NESHAP, Subpart 7E) per §63.11640(a). The affected sources are each collection of

"ore pretreatment processes" at a gold mine ore processing and production facility, and each collection of "carbon processes with mercury retorts" at a gold mine ore processing and production facility, per §63.11640(b). The affected sources will be new as they will commence construction after April 28, 2010, per §63.11640(b)(2). Midas Gold will be required to obtain a permit under 40 CFR part 70 (i.e., Title V permit) for the affected sources subject to this subpart, per §63.11640(d). Table 20 lists all the sources subject to NESHAP, Subpart 7E.

Table 20. NESHAP, Subpart 7E Sources

Source ID	Description	Affected Source
CKD	Carbon Regeneration Kiln (Drum)	Carbon Processes with Mercury Retorts
EW	Electrowinning Cells & Pregnant Solution Tank	Carbon Processes with Mercury Retorts
MR	Mercury Retort	Carbon Processes with Mercury Retorts
MF	Induction Melting Furnace	Carbon Processes with Mercury Retorts
AC	Autoclave	Ore Pretreatment Processes

4.3 Inapplicable Federal Regulations

The sections that follow provide an explanation for a few federal regulations that could appear to be applicable to the Midas Gold – Stibnite Gold Project but have been determined to not apply.

4.3.1 NSPS, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

In accordance with §60.40c(a), the affected facility to which NSPS, Subpart Dc applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 10 MMBtu/hr.

Based on the definitions in §60.41c, a steam generating unit means a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. ***This term does not include process heaters as defined in this subpart.*** A process heater means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

Midas Gold is proposing to install a 17 MMBtu/hr Pressure Oxidation (POX) Boiler, however this boiler meets the definition of a process heater because the steam produced by the boiler acts as a catalyst to promote the oxidation of the refractory ore by increasing the temperature and pressure in the autoclave. The purpose of the boiler is to heat the ore to cause oxidation of the sulfide minerals.

Midas Gold is also proposing to install a 22.0 MMBtu/hr Parallel Flow Regenerative (PFR) shaft lime kiln, that will combust propane to provide heat for the calcination of limestone to produce lime. Because the kiln does not produce steam or heat any heat transfer medium, it does not meet the definition of steam generating unit.

Therefore, NSPS, Subpart Dc does not apply to the POX Boiler, PFR Shaft Lime Kiln, nor any other units proposed to be installed at the Midas Gold – Stibnite Gold Project.

4.3.2 NSPS, Subpart HH - Standards of Performance for Lime Manufacturing Plants

In accordance with §60.340(a), NSPS, Subpart HH does not apply to the proposed PFR Shaft Lime Kiln, as this kiln is not a rotary lime kiln as defined in §60.341(d).

4.3.3 NSPS, Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants

NSPS, Subpart OOO is applicable to nonmetallic mineral processing plants that process limestone, but not to equipment that handles or processes lime. The following excerpts from the EPA Applicability Determination Index (ADI) clarify this interpretation:

- ADI Control Number NR14:
    - Abstract:

      Does Subpart OOO apply to a process which pneumatically conveys crushed lime into lime storage silos and exhausting the displaced air through a small baghouse?

      There is no equipment used to crush or grind any non-metallic mineral at this plant. Therefore, the plant is not classified as a non-metallic mineral processing plant, and Subpart OOO does not apply to this lime storage silo facility.
- ADI Control Number 0400016:
    - Abstract:

      Q: Is the processing of lime product at the Greer Lime Company in Riverton, West Virginia subject to 40 CFR part 60, subpart OOO?

      A: No, equipment used to process lime product is not subject to New Source Performance Standards (NSPS) subpart OOO.

Q: Is a limestone dryer at the Greer Lime Company in Riverton, West Virginia subject to 40 CFR part 60, subpart UUU?

A: No, limestone is not a listed mineral in the definition of a "mineral processing plant," as defined in section 60.730, and therefore is not subject to NSPS subpart UUU.

Table 21 list the lime handling and processing sources that are not subject to NSPS, Subpart OOO.

Table 21. Sources Not Subject to NSPS, Subpart OOO

Source ID	Description
MillS2L	Mill Lime Silo #2 Loading
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor
ACS1L	AC Lime Silo #1 Loading
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker
ACS2L	AC Lime Silo #2 Loading
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker
ACS3L	AC Lime Silo #3 Loading
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker
ACS4L	AC Lime Silo #4 Loading
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker
LCR	Lime Mill Crushing and associated transfers In and Out
LSL	Pebble Lime Silo Loading via Bucket Elevator
LSU	Pebble Lime Silo discharge to Lime Slaker

4.3.4 NESHAP, Subpart AAAAA (5A) – National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants

In accordance with §63.7081(a), NESHAP, Subpart AAAAA does not apply to the Stibnite Gold Project as Midas Gold is not proposing to operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions.

4.3.5 40 CFR Part 70 – Title V Permitting Program

As discussed in Section 4.2.6, the sources subject to NESHAP, Subpart EEEEEEE are required to obtain a Title V permit. However, this requirement is limited to these affected sources because

the Stibnite Gold Project is a nonmajor source. Per 40 CFR 70.3(c)(2): “For any nonmajor source subject to the part 70 program under paragraph (a) or (b) of this section, the permitting authority shall include in the permit all applicable requirements applicable to emissions units that cause the source to be subject to the part 70 program.” Therefore, all other emissions units that do not cause the source to be subject to the part 70 program do not require a Title V permit.

5.0 AMBIENT IMPACT ASSESSMENT

The "Stibnite Gold Project Air Quality Modeling Protocol" was submitted to IDEQ on May 24, 2019. IDEQ provided comments on June 27, 2019, and stated that "*DEQ modeling staff considers the submitted dispersion modeling protocol, with consideration and resolution of the additional items noted above, to be approved*." In accordance with the "State of Idaho Guideline for Performing Air Quality Impact Analyses," Air Sciences has prepared an air quality analysis report, showing the project's compliance with the applicable ambient standards. The "Stibnite Gold Project Air Quality Modeling Report" can be found in Attachment A of this application.

Attachment A – Ambient Impact Assessment: Stibnite Gold Project Air Quality Modeling Report

AIR SCIENCES INC.

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Attachment A

Stibnite Gold Project

Air Quality Modeling Report

PREPARED FOR:
MIDAS GOLD IDAHO, INC.

PROJECT NO. 335-1-4
JUNE 23, 2020

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LIST OF ABBREVIATIONS

°	Degrees
°F	Degrees Fahrenheit
$\mu g/m^3$	Micrograms per Cubic Meter
µm	Microns/Micrometers
AACC	Acceptable Ambient Concentrations for Carcinogens
ADJ_U*	AERMOD Adjusted Friction Velocity Model Option
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
amsl	Above Mean Sea Level
ANFO	Ammonium Nitrate Fuel Oil
B_o	Bowen Ratio
BNF	Boise National Forest
BPIP	Building Profile Input Program
BT	Bradley Tailings
CAPCOA	California Air Pollution Control Officers Association
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSIRO	Commonwealth Scientific and Industrial Research Organization
DR	Development Rock
DRSF	Development Rock Storage Facility
EF	Emission Factors
EFSFSR	East Fork of the South Fork of the Salmon River
EL	Screening Emission Levels
EPA	United States Environmental Protection Agency
FDRSF	Fiddle Development Rock Storage Facility

g/cm^3	Grams per Cubic Centimeter
H_2SO_4	Sulfuric Acid Gas
HAP	Hazardous Air Pollutant
HFDRSF	Hangar Flats Development Rock Storage Facility
HFP	Hangar Flats Pit
Hg	Mercury
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
in	Inches
km	Kilometers
lb/yr	Pounds per Year
LOM	Life of Mine
m	Meters
MERPs	Modeled Emission Rates for Precursors
mg/m^3	Milligrams per Cubic Meter
Midas Gold	Midas Gold Idaho, Inc.
MM	Million
mph	Miles per Hour
NAAQS	National Ambient Air Quality Standards
NAD83	North American Datum of 1983
NDEP	Nevada Division of Environmental Protection
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Oxides of Nitrogen
NSR	New Source Review

NW AIRQUEST	Northwest International Air Quality Environmental Science and Technology Consortium
NWS	National Weather Service
O_3	Ozone
OLM	Ozone Limiting Method
Pb	Lead
PM_{10}	Particulate Matter less than 10 Microns in Aerodynamic Diameter
$PM_{2.5}$	Particulate Matter less than 2.5 Microns in Aerodynamic Diameter
PNF	Payette National Forest
ppb	Parts per Billion
ppm	Parts per Million
PRIME	Plume Rise Model Enhancement
PRO	Midas Gold Plan of Restoration and Operations
PTC	Permit to Construct
r	Albedo
SED	Segment Emission Denominator
SGP	Stibnite Gold Project
SO_2	Sulfur Dioxide
STKP	Crusher Stockpile
TAP	Toxic Air Pollutants
ton/day	Tons per Day
ton/yr	Tons per Year
TSF	Tailings Storage Facility
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
WBAN	Weather-Bureau-Army-Navy

WEDRSF	West End Development Rock Storage Facility
WEP	West End Pit
YPDRSF	Yellow Pine Development Rock Storage Facility
YPP	Yellow Pine Pit
z_o	Surface Roughness Length

1.0 SUMMARY

Midas Gold Idaho, Inc., proposes to construct and operate the Stibnite Gold Project in Valley County, Idaho, located approximately 100 miles northeast of Boise. The Stibnite Gold Project is in an area that is classified as in attainment with all criteria pollutants and is designated as a Class II area.

The Stibnite Gold Project will consist of conventional open-pit mining operations and onsite ore preparation and gold extraction processes. The potential air emissions from the Stibnite Gold Project are less than the applicable major source thresholds for both criteria and hazardous air pollutants, and therefore, it is expected to be designated as a minor source for Title V and New Source Review requirements, and an area source for National Emission Standards for Hazardous Air Pollutants applicability.

This air quality analyses report provides a detailed description of methods, techniques, and datasets used by Midas Gold Idaho, Inc. for conducting air quality modeling analyses to fulfill the applicable requirements of Idaho Administrative Procedures Act 58.01.01 – Rules of Control of Air Pollution in Idaho, and to obtain a minor source permit to construct for the Stibnite Gold Project.

The results of modeling analyses provided in this report are summarized in Table 1. All concentrations and standards are listed in units of micrograms per cubic meter ($\mu g/m^3$).

Table 1. Modeling Analyses Results Summary

Pollutant	Averaging Time	Max. Conc. (μg/m³)	Back. Conc. (μg/m³)	Total Conc. (μg/m³)	NAAQS/ AAC/ AACC (μg/m³)	In Compliance
CO	8 hours	6,218	1,110	7,328	10,000	Yes
	1 hour	17,054	1,740	18,794	40,000	Yes
NO_2	1 year	2.3	0.9	3.2	100	Yes
	1 hour	116.7	4.3	121.0	188	Yes
$PM_{2.5}$	1 year	4.2	3.5	7.7	12	Yes
	24 hours	11.0	15.0	26.0	35	Yes
PM_{10}	24 hours	75.7	37.0	112.7	150	Yes
SO_2	3 hours	1.8	16.8	18.6	1,300	Yes
	1 hour	3.2	12.3	15.5	196	Yes
Antimony	24 hours	0.02705	--	0.02705	25	Yes
Arsenic	Annual	0.00008	--	0.00008	0.00023	Yes
Cadmium	Annual	0.00001	--	0.00001	0.00056	Yes
Formaldehyde	Annual	0.00076	--	0.00076	0.077	Yes
Nickel	Annual	0.00006	--	0.00006	0.0042	Yes
Sulfuric Acid	24 hours	0.52563	--	0.52563	50	Yes

Max. Conc. = maximum modeled concentration; Back. Conc. = background concentration; Total Conc. = total (modeled + background) concentration; NAAQS = National Ambient Air Quality Standards; AAC = Acceptable Ambient Concentrations; AACC = Acceptable Ambient Concentrations for Carcinogens; CO = carbon monoxide; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; SO_2 = sulfur dioxide

Table 1 shows that the estimated ambient air impacts from the Stibnite Gold Project emissions are expected to show compliance with the applicable standards for both criteria and toxic air pollutants.

The organization of this report follows the Idaho Department of Environmental Quality's "Air Impact Modeling Analyses Report Template Form," version 1, July 2015, and addresses the applicable modeling requirements of the Idaho Department of Environmental Quality's modeling guidelines, version September 2013 (IDEQ 2013b).

The checklist statements indicated in the Idaho Department of Environmental Quality report template are included at the end of relevant sections in an *italicized* font.

2.0 PROJECT DESCRIPTION AND BACKGROUND AS IT RELATES TO MODELING ANALYSES

Midas Gold Idaho, Inc. (Midas Gold) proposes to construct and operate the Stibnite Gold Project (SGP) in Valley County, Idaho. The SGP will consist of conventional open-pit mining operations and onsite ore preparation and gold extraction processes, along with offsite infrastructure that includes a power transmission line and a site access road. A detailed description of the SGP is provided in Midas Gold's Plan of Restoration and Operations (PRO) (Midas Gold 2016), submitted to the relevant reviewing agencies in September 2016. Relevant information from the SGP PRO is provided in this report.

2.1 General Facility/Project Description

The SGP will require the construction of significant infrastructure, including a power transmission line, a primary mine site access road, onsite haul roads, an ore processing facility, onsite workspaces, employee housing and recreation, water storage and distribution facilities, and sewage disposal facilities.

The SGP will include three years of pre-mining development and construction activities, followed by an operating mine life of approximately 12 years. Mining will occur in three open pits: Yellow Pine pit (YPP), Hangar Flats pit (HFP), and West End pit (WEP). The general sequence of mining will be the YPP deposit, followed by the HFP and WEP deposits. Legacy tailings from the Meadow Creek valley (Bradley Tailings [BT]) also will be reclaimed and reprocessed during the initial project schedule. Surface exploration drilling will continue within the pits and the Scout Prospect decline (underground exploration) throughout the mine operation period. Restoration and reclamation of other legacy mining features will occur prior to mining, throughout the life of the mine, and as part of the mine closure.

Conventional open-pit methods including drilling, blasting, excavating, and hauling will be used to extract ore and waste rock, termed development rock (DR). Hydraulic shovels and front-end loaders will be used to load ore and DR into haul trucks. DR will be used for construction, restoration, and backfilling, or hauled to the dedicated development rock storage facilities (DRSF). Approximately 340 million tons of DR will be handled over the life of the mine. Ore will be hauled to the primary crusher area, where it will be fed directly into the crusher dump pocket or stockpiled. The ore crushing plant will be designed to operate at a maximum rate of 25,000 tons per day (ton/day). Approximately 100 million tons of ore will be mined from the three pits over the life of the project.

The metal-recovery process from ore will include conventional crushing and grinding, followed by froth-flotation circuits that will generate separate gold-silver and antimony-silver concentrates. The antimony-silver concentrate will be shipped offsite for refining, whereas

additional onsite processing of the gold-silver concentrate will include pressure oxidation, carbon-in-leach circuits, and refining processes to recover gold and minor amounts of silver. The finely ground leftover ore material from the mineral-recovery process, termed tailings, will be neutralized, thickened, and transported via a pipeline to the tailings storage facility (TSF). A simplified ore processing and refining flow diagram is presented in Figure 1. This figure also shows the throughput monitoring locations. In some cases, throughput is monitored at process bottlenecks for monitoring a group of sources.

Lime used in the ore processing will either be purchased or manufactured onsite from limestone available at the site. A simplified lime production flow diagram is presented in Figure 2. This figure also shows the throughput monitoring locations. In addition, certain construction and maintenance activities during operations may require sized aggregate. To allow for the operational flexibility to produce construction aggregate onsite, this application includes two portable crushing and screening plants.

The following air pollutants are expected from operations at the SGP facility:

- Criteria air pollutants: carbon monoxide (CO), oxides of nitrogen (NO_X), particulate matter less than 2.5 microns (µm) and 10 µm ($PM_{2.5}$ and PM_{10}), sulfur dioxide (SO_2), lead (Pb), and ozone (O_3) precursor volatile organic compounds (VOC)
- Hazardous air pollutants (HAP), including mercury (Hg)
- Other non-HAP toxic air pollutants (TAP)
- Greenhouse gases

A summary of SGP facility-wide process and ancillary source maximum potential emissions in tons per year (ton/yr) is provided in Table 2. Emission details are provided in Section 4.0.

Table 2. Process and Ancillary Source Potential Emissions Summary (ton/yr)

CO	NO_X	$PM_{2.5}$	PM_{10}	SO_2	VOC	HAP[1]
30.5	37.9	36.4	56.3	6.5	4.8	1.79

[1] Maximum facility-wide potential emissions for all HAP combined, maximum single HAP emissions are 0.97 ton/yr for cyanide compounds.

The potential emissions from the SGP are less than the applicable major source thresholds for both criteria (100 ton/yr per pollutant) and hazardous air pollutants (HAP) (25 ton/yr aggregate and 10 ton/yr per single HAP); therefore, it is expected to be designated a minor source for Title V and New Source Review (NSR) (applicable threshold is 250 ton/yr per criteria pollutant) requirements and an area source for National Emission Standards for Hazardous Air Pollutants (NESHAP) applicability.

Figure 1. Ore Processing and Refining Flow Diagram

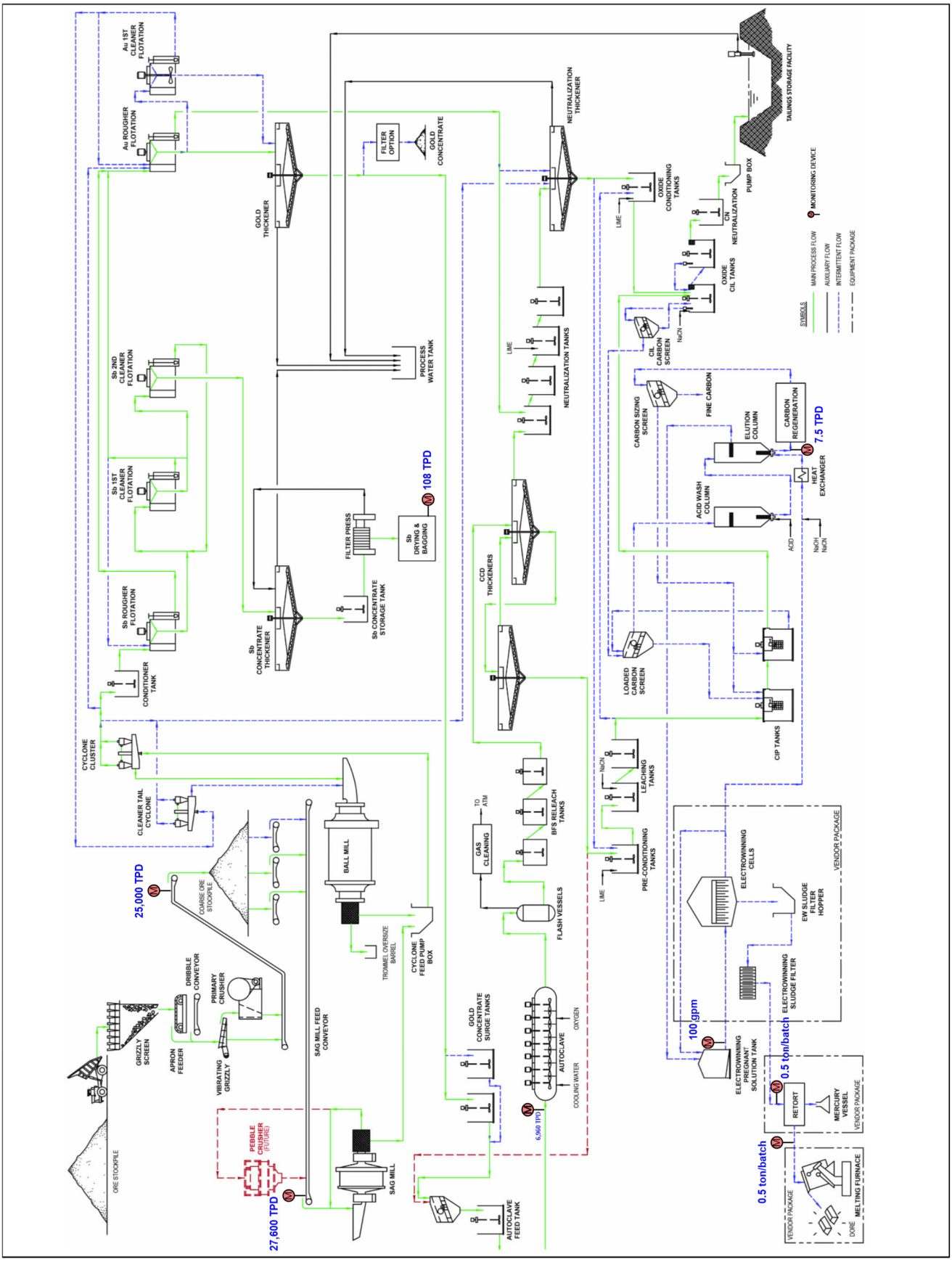
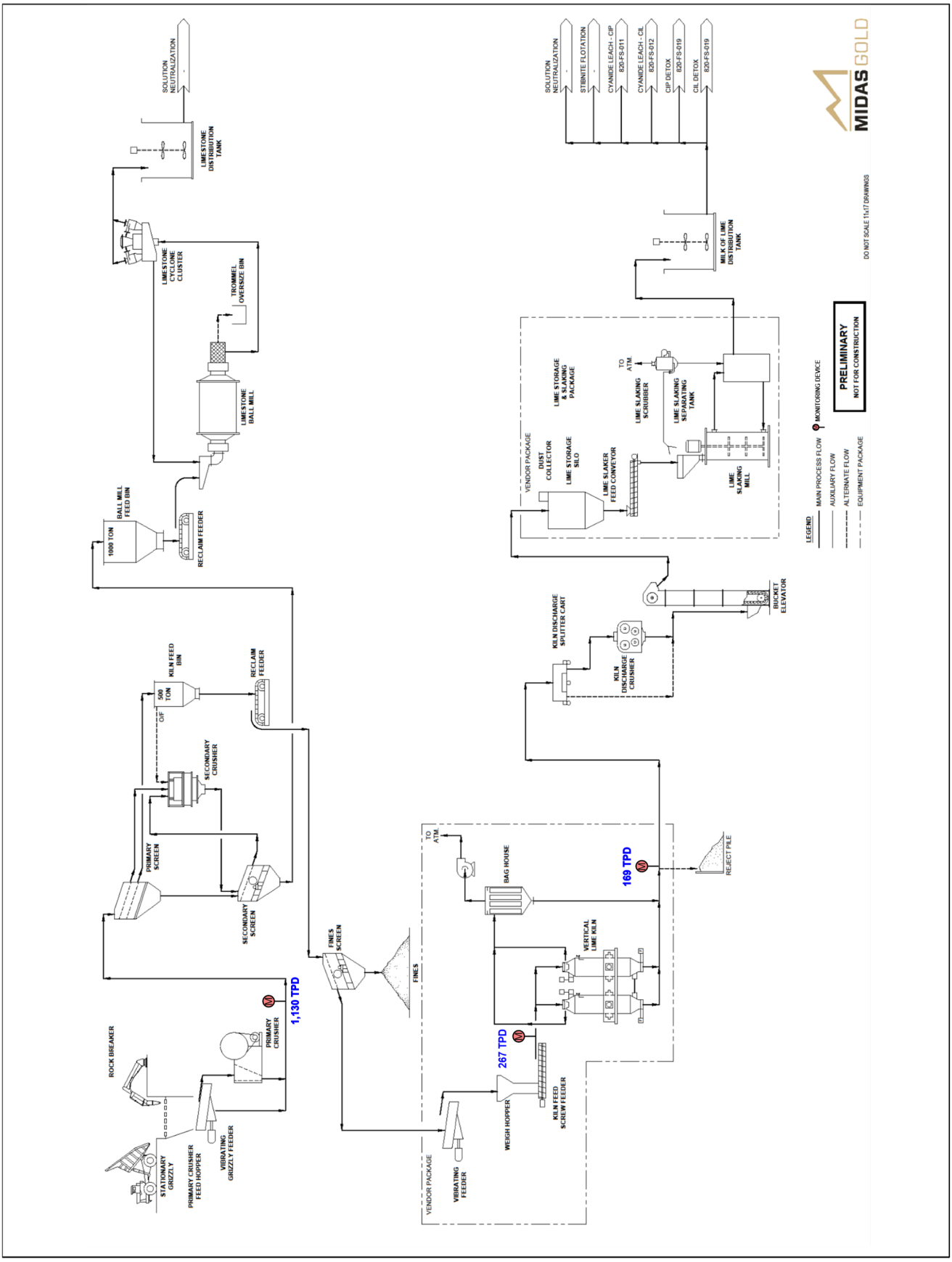


Figure 2. Lime Production Flow Diagram



2.2 Location of Project

The SGP is located in Valley County in central Idaho, approximately 100 miles northeast of Boise, 38 miles east of McCall, and approximately 10 miles east of Yellow Pine. A facility location map for the SGP is presented in Figure 3. This figure also shows the proposed Burntlog Route (access road) that will provide a year-round safe access to the site. The project area comprises a combination of public national forest and private lands. The SGP PRO comprises a comprehensive restoration, operation, and reclamation plan by which an existing heavily disturbed brownfield site will be redeveloped, old tailings will be reprocessed, and the habitat will be enhanced to help rehabilitate an important salmon fishery. Simultaneously, the local economy of Valley County in particular, and of Idaho as a whole, will improve. Over the years, Midas Gold has conducted extensive technical studies to determine the environmental, social, and economic feasibility of redeveloping the SGP. The results of these studies are detailed in the SGP PRO.

The SGP site layout is presented in Figure 4.

☒ *A map showing the geographical location of the facility is provided in this section or a reference is provided to another location in the application where a map is provided.*

Figure 3. SGP Facility Location Map

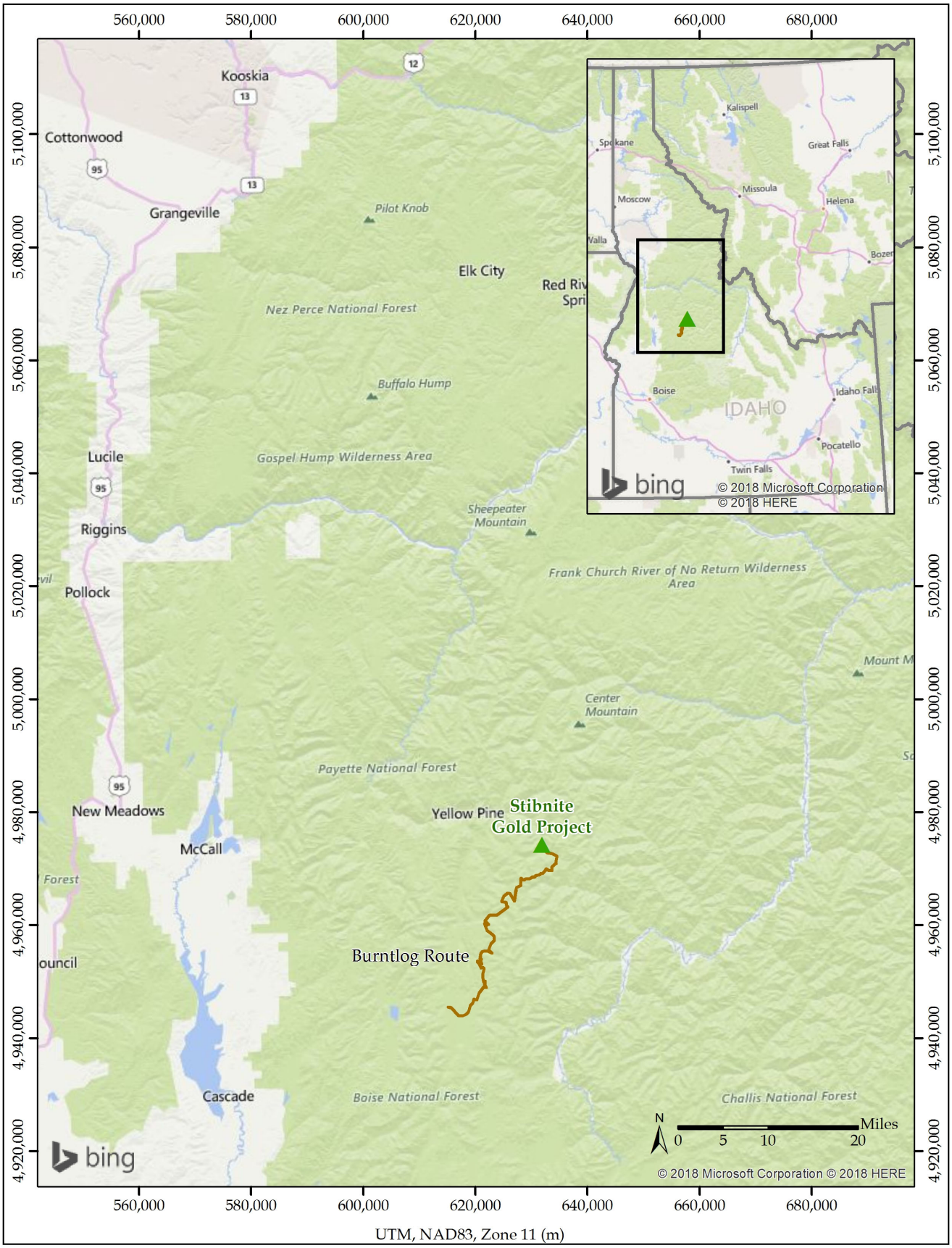
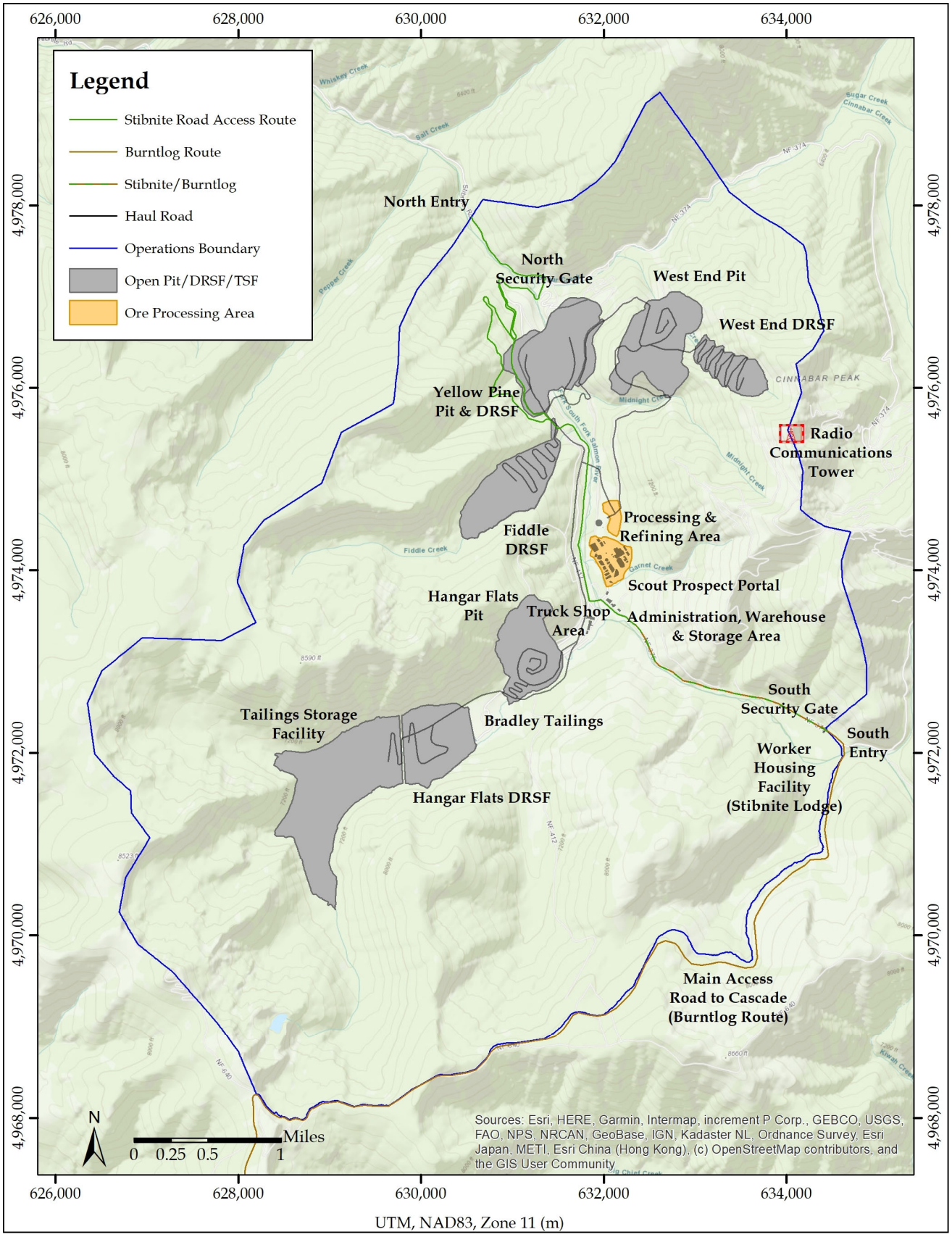


Figure 4. SGP Site Layout and Stibnite Road Access Route



2.3 Site Characteristics

Midas Gold has prepared an Air Quality Baseline Study Report (Midas Gold 2017a) (SGP baseline study) that provides comprehensive details of the project area's existing site characteristics, including climate and air quality. The following site characterization of the project area is adopted from the SGP baseline study and the SGP PRO.

The SGP is located in the Stibnite-Yellow Pine Mining District in central Idaho, approximately 10 air miles east of the village of Yellow Pine. Located in Valley County, the district is characterized by historic mining activities and unpatented (federal land) and patented (private land) mining claims that include deposits of gold, silver, tungsten, and antimony. The Stibnite-Yellow Pine Mining District lies in both Boise National Forest (BNF) and Payette National Forest (PNF), but is administered by the PNF's Krassel Ranger District (Midas Gold 2017a). The project area terrain is characterized by narrow valleys 6,000 to 6,600 feet above mean sea level (amsl), surrounded by steep mountains ranging over 8,500 feet amsl. The main drainage basin in the project area is the East Fork of the South Fork of the Salmon River (EFSFSR).

The EFSFSR joins Johnson Creek 16 miles downstream, near the village of Yellow Pine. The project area is encompassed by the watersheds of EFSFSR tributaries, including Sugar Creek, Meadow Creek, Johnson Creek, Riordan Creek, Burntlog Creek, Midnight Creek, and Trout Creek. Primary commercial activity in the area comprises mineral exploration, mining, logging, and dispersed recreation.

Currently, the project site can be accessed from State Highway 55 via the Warm Lake, Johnson Creek, and Stibnite Roads. The proposed Burntlog Route, which will include an extension and upgrade of the existing Burntlog Road and portions of Thunder Mountain Road, will provide safe, year-round access to the project site. The Burntlog Route is shown in Figure 3.

At the request of local community citizens, Midas Gold is evaluating an alternative to provide restricted seasonal access through the SGP site between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek. This alternative would allow limited access to the Thunder Mountain recreational area from the town of Yellow Pine similar to the existing seasonal route.

The project area climate is characterized as semi-arid due to the proximity of the Cascade and Sierra Nevada Mountains to the west and the Bitterroot and Rocky Mountains to the north, which effectively block large-scale intrusion of Pacific Ocean moisture. Summer monsoonal moisture intrusions are infrequent and significantly modified by the arid Great Basin of Utah and Nevada. The Bitterroot and Rocky Mountains form the headwaters of the Snake and Salmon Rivers and receive copious amounts of winter snow. The Salmon River Range that surrounds the site lies at a slightly lower elevation than either of these other greater ranges, and as a result, it receives less overall snowfall.

Data on the seasonal average temperatures in degrees (°) Fahrenheit (F), precipitation, and snow depth in inches (in) are provided in Table 3. These seasonal statistics were derived from data provided in the SGP baseline study (Midas Gold 2017a).

Table 3. Project Area Seasonal Temperature, Precipitation, and Snow Depth Data

Season	Months	Average Temperature (°F)	Average Precipitation (in)	Average Snow Depth (in)
Winter	December – February	10 – 33	6.0	21 – 68
Spring	March – May	17 – 59	6.1	66 – 84
Summer	June – August	38 – 80	2.5	0 – 21
Fall	September – November	19 – 68	4.5	0 – 3

2.4 Site Attainment Status and Ambient Air Quality Standards

The United States Environmental Protection Agency (EPA) classifies geographical regions as attainment, maintenance, or nonattainment based on prevailing air quality in the region. The SGP area is in compliance with National Ambient Air Quality Standards (NAAQS) for applicable pollutants; therefore, it is classified as in attainment with all criteria pollutants and designated as a Class II area (EPA 2018c) (IDEQ n.d.).

2.5 Coordinate System

The Universal Transverse Mercator (UTM) North American Datum of 1983 (NAD83), Zone 11 coordinate system was used in this modeling analysis to define all locations in the modeling domain (sources, buildings, and receptors).

General SGP facility NAD83, UTM Zone 11 coordinates are 632,038 meters east and 4,973,751 meters north (administration building).

2.6 Existing Permits and Modeling Analyses Performed

The SGP is a proposed new facility and does not have any existing air quality permits or modeling analyses.

☐ *Any existing air quality permits are listed and described in this section, and any associated air quality modeling analyses have been described and referenced, and submitted if appropriate.*

3.0 MODELING ANALYSES APPLICABILITY AND PROTOCOL

A comparison of the criteria pollutant Level I modeling thresholds from Table 2 of the Idaho Department of Environmental Quality (IDEQ) modeling guidelines (IDEQ 2013b), with applicable facility-wide maximum potential to emit estimates, is provided in Table 4.

Table 4. Criteria Pollutant Modeling Applicability Determination

Source Category	CO	NO_X		$PM_{2.5}$		PM_{10}	SO_2		Pb
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	lb/hr	ton/yr	lb/hr	lb/month
Process and ancillary	33.5	37.9	55.4	36.4	13.4	21.7	6.5	1.88	0.0437
Mining fugitive	1,742.0	17.1	46.8	98.9	22.5	224.7	0.03	0.09	--
Total	1,775.5	55.0	102.2	135.3	35.9	246.4	6.5	1.97	0.0437
Level I threshold	15.0	1.2	0.2	0.35	0.054	0.22	1.2	0.21	14.0
Modeling required	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No

Table 4 shows that the SGP facility-wide maximum potential to emit are greater than the respective Level I thresholds for all criteria pollutants and averaging periods except for Pb. Therefore, modeling is triggered for applicable averaging periods for CO, NO_X, $PM_{2.5}$, PM_{10}, and SO_2; and modeling is not required for Pb.

A comparison of the applicable non-carcinogenic and carcinogenic screening emission levels (EL) for the TAP from Idaho Administrative Procedures Act (IDAPA) 58.01.01, Sections 585 and 586, respectively, with applicable facility-wide maximum potential TAP emissions is provided in Table 5.

Table 5. TAP Modeling Applicability Determination

CAS No.	TAP	Emissions (lb/hr)				EL (lb/hr)		Determination
		(1)	(2)	(3)	Total	(4)	(5)	
106-99-0	1,3-Butadiene	--	--	--	--	--	2.4E-5	EL not exceeded
56-49-5	3-Methylchloranthrene	1.2E-7	--	--	1.2E-7	--	2.5E-6	EL not exceeded
75-07-0	Acetaldehyde	--	--	--	--	--	3.0E-3	EL not exceeded
107-02-8	Acrolein	--	--	--	--	1.7E-2	--	EL not exceeded
7440-36-0	Antimony	--	--	6.9E-2	6.9E-2	3.3E-2	--	Non-carcinogenic EL exceeded
7440-38-2	Arsenic	1.3E-5	--	4.4E-3	4.4E-3	--	1.5E-6	Carcinogenic EL exceeded
71-43-2	Benzene	1.4E-4	--	--	1.4E-4	--	8.0E-4	EL not exceeded
50-32-8	Benzo(a)pyrene	7.9E-8	--	--	7.9E-8	--	2.0E-6	EL not exceeded
7440-41-7	Beryllium	7.9E-7	--	2.2E-5	2.2E-5	--	2.8E-5	EL not exceeded

CAS No.	TAP	Emissions (lb/hr)				EL (lb/hr)		Determination
		(1)	(2)	(3)	Total	(4)	(5)	
7440-43-9	Cadmium	7.3E-5	--	4.1E-5	1.1E-4	--	3.7E-6	Carcinogenic EL exceeded
75-15-0	Carbon disulfide	--	--	1.4E-2	1.4E-2	2.0E+0	--	EL not exceeded
7440-47-3	Chromium	9.2E-5	--	1.2E-4	2.1E-4	3.3E-2	--	EL not exceeded
7440-48-4	Cobalt	5.5E-6	--	2.4E-5	2.9E-5	3.3E-3	--	EL not exceeded
592-01-8	Cyanide	--	--	2.2E-1	2.2E-1	3.3E-1	--	EL not exceeded
106-46-7	Dichlorobenzene	7.9E-5	--	--	7.9E-5	3.0E+1	--	EL not exceeded
50-00-0	Formaldehyde	5.0E-3	--	--	5.0E-3	--	5.1E-4	Carcinogenic EL exceeded
110-54-3	Hexane	1.2E-1	--	--	1.2E-1	1.2E+1	--	EL not exceeded
7439-96-5	Manganese	2.5E-5	--	3.5E-2	3.5E-2	6.7E-2	--	EL not exceeded
91-20-3	Naphthalene	4.0E-5	--	--	4.0E-5	3.3E+0	--	EL not exceeded
7440-02-0	Nickel	1.4E-4	--	2.9E-3	3.0E-3	--	2.7E-5	Carcinogenic EL exceeded
7723-14-0	Phosphorus	--	--	6.1E-3	6.1E-3	7.0E-3	--	EL not exceeded
7782-49-2	Selenium	1.6E-6	--	--	1.6E-6	1.3E-2	--	EL not exceeded
108-88-3	Toluene	2.2E-4	--	--	2.2E-4	2.5E+1	--	EL not exceeded
1330-20-7	Xylene	--	--	--	--	2.9E+1	--	EL not exceeded
7440-39-3	Barium	2.9E-4	--	4.7E-3	5.0E-3	3.3E-2	--	EL not exceeded
7440-50-8	Copper	5.6E-5	--	2.9E-5	8.6E-5	6.7E-2	--	EL not exceeded
7783-06-4	Hydrogen Sulfide	--	--	9.0E-1	9.0E-1	9.3E-1	--	EL not exceeded
7439-98-7	Molybdenum	7.3E-5	--	5.9E-6	7.9E-5	3.3E-1	--	EL not exceeded
109-66-0	Pentane	1.7E-1	--	--	1.7E-1	1.2E+2	--	EL not exceeded
7440-22-4	Silver	--	--	2.9E-6	2.9E-6	7.0E-3	--	EL not exceeded
7664-93-9	Sulfuric Acid	--	--	2.0E+0	2.0E+0	6.7E-2	--	Non-carcinogenic EL exceeded
7440-28-0	Thallium	--	--	5.9E-5	5.9E-5	7.0E-3	--	EL not exceeded
7440-61-1	Uranium	--	--	5.9E-5	5.9E-5	1.3E-2	--	EL not exceeded
7440-62-2	Vanadium	1.5E-4	--	--	1.5E-4	3.0E-3	--	EL not exceeded
7440-66-6	Zinc	1.9E-3	--	--	1.9E-3	6.7E-1	--	EL not exceeded

(1) TAP emissions from propane combustion.

(2) TAP emissions from diesel combustion. Diesel engine HAP emissions are regulated by Code of Federal Regulations, Title 40, Part 63 (40 CFR 63), Subpart ZZZZ and therefore exempt from TAP analysis per IDAPA 58.01.01 Section 210.20.

(3) TAP emissions from material processing.

(4) Non-carcinogenic EL from IDAPA 58.01.01 Section 585.

(5) Carcinogenic EL from IDAPA 58.01.01 Section 586.

Table 5 shows that the SGP facility-wide potential TAP emissions exceed the respective EL for antimony, arsenic, cadmium, formaldehyde, nickel, and sulfuric acid.

3.1 Applicable Standards

Based on the criteria pollutant modeling applicability determination provided in Table 4, the SGP facility-wide maximum potential emissions were evaluated to demonstrate compliance with applicable NAAQS provided in Table 6. NAAQS are provided in applicable units of parts per billion (ppb) and/or micrograms per cubic meter (μg/m^3). Table 6 also shows design value for each NAAQS. Applicable modeled values (form or rank) were used for compliance determination for each pollutant-averaging time combination.

Table 6. Applicable NAAQS for SGP Air Quality Analyses

Pollutant	Averaging Time	NAAQS (ppb)	NAAQS (μg/m^3)	NAAQS Form/Design Value Rank
CO	8 hours	9,000	10,000	Not to be exceeded more than once per year
	1 hour	35,000	40,000	
NO_2	1 year	53	100	Annual mean
	1 hour	100	188	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
$PM_{2.5}$	1 year	--	12	Annual mean, averaged over 3 years
	24 hours	--	35	98th percentile, averaged over 3 years
PM_{10}	24 hours	--	150	Not to be exceeded more than once per year on average over 3 years
SO_2	3 hours	500	1,300	Not to be exceeded more than once per year
	1 hour	75	196	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

Based on the TAP modeling applicability determination provided in Table 5, TAP analyses were performed to show compliance with the applicable Acceptable Ambient Concentrations (AAC, in milligrams per cubic meter (mg/m^3), 24-hour averaging time) for non-carcinogenic TAP and Acceptable Ambient Concentrations for Carcinogens (AACC, in μg/m^3, annual averaging time) for carcinogenic TAP provided in Table 7.

Table 7. Applicable AACC for SGP TAP Analyses

CAS No.	TAP	Averaging Time	AAC[1] (mg/m^3)	AACC[2] (μg/m^3)
7440-36-0	Antimony	24 hours	2.5E-2	--
7440-38-2	Arsenic	Annual	--	2.3E-4
7440-43-9	Cadmium	Annual	--	5.6E-4
50-00-0	Formaldehyde	Annual	--	7.7E-2
7440-02-0	Nickel	Annual	--	4.2E-3
7664-93-9	Sulfuric Acid	24 hours	5.0E-2	--

[1] IDAPA 58.01.01 Section 585.

[2] IDAPA 58.01.01 Section 586.

Modeled 24-hour and annual average concentrations were used to demonstrate compliance with applicable AAC and AACC respectively.

☒ *All TAPs identified in the emissions inventory for the project are listed in the TAPs EL and AAC/AACC Table in this section.*

3.2 Criteria Pollutant Modeling Applicability

A comparison of criteria pollutant level I modeling thresholds from Table 2 of the Idaho Department of Environmental Quality (IDEQ) modeling guidelines (IDEQ 2013b) with applicable facility-wide maximum potential to emit estimates is provided in Table 4.

Table 4 shows that the SGP facility-wide maximum potential emissions are greater than the respective level I thresholds for all criteria pollutants and averaging times, except that for Pb. Therefore, modeling is triggered for applicable averaging times for CO, NO_X, $PM_{2.5}$, PM_{10}, and SO_2, whereas modeling is not required for Pb.

☒ *Explanations/documentation why modeling was or was not performed for each criteria pollutant are provided in this section.*

☒ *Emissions calculations that clearly show how the modeling applicability determination was performed are provided in this section.*

3.3 TAP Modeling Applicability

Based on the TAP modeling applicability determination provided in Table 5, the SGP facility-wide potential TAP emissions exceed the respective carcinogenic EL for antimony, arsenic, cadmium, formaldehyde, nickel, and sulfuric acid. The facility-wide potential emissions for the remaining TAP identified in Table 5 are below their respective EL and therefore do not require modeling.

☒ *Explanation/documentation on why modeling was or was not performed for emissions of each TAP identified in the emissions inventory of the application are provided in this section.*

3.4 Modeling Protocol

A modeling protocol for the SGP analyses was submitted to IDEQ prior to the application, on May 30, 2019. The protocol was submitted by Brown and Caldwell on behalf of Midas Gold. Conditional IDEQ protocol approval (IDEQ 2019) was provided to Brown and Caldwell on June 27, 2019. Project-specific modeling and other required impact analyses were generally conducted using the data and methods described in the protocol and in the Idaho Air Quality Modeling Guideline.

☒ *If a protocol was submitted to DEQ prior to performing the modeling analyses, the protocol and DEQ's conditional protocol approval notice is included in Attachment 1 of this Modeling Report.*

☒ *Concerns identified by DEQ in the protocol approval notice have been addressed in the analyses performed and in this Modeling Report.*

4.0 MODELED EMISSIONS SOURCES

Detailed SGP facility-wide potential emissions calculations (including uncontrolled emissions for process and ancillary sources) are provided in Appendix B. The air emissions inventory contains detailed emission calculations of the potential to emit for the SGP mining operations (including haul roads) and ore processing (including refining) activities. Emissions were estimated for the following:

- Criteria air pollutants: CO, NO_X, $PM_{2.5}$, PM_{10}, SO_2, Pb, and O_3 precursor VOC
- Applicable HAP from Section 112(b) of the Clean Air Act
- Applicable TAP listed in IDAPA 58.01.01 Sections 585 and 586
- Greenhouse gases: Carbon dioxide, methane, nitrous oxide, and carbon dioxide equivalent

The SGP emissions calculations were based on project-specific activity rates (e.g., production rates, materials hauled, blasting agent consumption), operation methods (e.g., open-pit mining, refining methods), design criteria (e.g., equipment type and size, hauling distances), emission abatement techniques (e.g., watering, baghouse, carbon filter), material characteristics (e.g., moisture content, silt content, density), and site characteristics (e.g., wind, precipitation) obtained from the following resources:

- SGP Prefeasibility Study (M3 2014)
- SGP Soil Resources Baseline Study (Midas Gold 2015)
- SGP PRO (Midas Gold 2016)
- SGP Mine Plan and Equipment Schedule (Midas Gold 2017b)
- SGP Baseline Study (Midas Gold 2017a)
- SGP Geographic Information System files (Midas Gold 2017d)
- Other technical information received from Midas Gold and M3 (Midas Gold 2017c) (Midas Gold 2017e) (Midas Gold 2017f) (Midas Gold 2018a) (Midas Gold 2018b) (Midas Gold 2018c) (Midas Gold 2018e) (Midas Gold 2018f) (Midas Gold 2018d) (Midas Gold 2018g) (Midas Gold 2019a) (Midas Gold 2019b) (Midas Gold 2019c) (Midas Gold 2019d) (M3 2017a) (M3 2017b) (M3 2017c) (M3 2017d) (M3 2019)

Activity-specific (e.g., drilling, blasting, material crushing and conveying, refining, and other ancillary sources) emissions were estimated based on maximum activity rates, coupled with applicable emission estimation techniques. Maximum emissions were calculated on a short-term (hourly and daily) and long-term (annual) basis for ore processing and mining operations, as discussed below.

The ore-processing rate will range from 20,000 ton/day to 25,000 ton/day at full production. Therefore, maximum potential daily ore processing emissions were based on the maximum design rate of 25,000 ton/day. Maximum potential annual emissions were based on potential daily emissions multiplied by 365 days per year.

Emissions from mining operations (drilling, blasting, material extraction and movement, mobile mine machinery use, and other ancillary sources) vary for each year of the life of the mine (LOM). However, for the modeling analyses, the mining operation potential emissions were estimated using conservatively high maximum activity rates provided in Table 8.

Table 8. Mining Activity Rates for Potential Emission Calculations

Activity	Maximum Rate[1]		Comments
Drilling	600	drill holes per blast	
Blasting	2	blasts per day	
	1	blast per hour	
Material extraction and hauling	180,000	tons per day	Ore or DR
Onsite dozing	144	hours per day	6 dozers operating continuously
Onsite grading	72	hours per day	3 graders operating continuously
Onsite water trucking	48	hours per day	2 trucks operating continuously

[1] A conservatism analysis for the mining rates is provided in Appendix A.

The potential hourly emission rates for ore processing and mining operation activities were calculated by dividing the daily rate by the 24 hour per day operation schedule, and annual rates were calculated by multiplying maximum daily emissions with 365 days per year. This is conservative because the mine is expected to operate for only 355 days per year.

The maximum mine production rate is approximately 42.7 million (MM) tons per year (ton/yr); however, a maximum daily production rate of 180,000 ton/day used for potential emission calculations results in a conservatively higher production rate of approximately 65.7 MMton/yr, approximately 50 percent higher than the projected production rate.

Midas will employ newer model year mining and maintenance machines (excavators, shovels, haul trucks, dozers, graders, portable light plants, etc.) that are expected to meet or exceed applicable regulatory emission standards. Nonroad mobile equipment engines are exempt from

permitting requirements; therefore, the tailpipe emissions resulting from fuel combustion in the nonroad mobile equipment are not quantified for the SGP facility.

The approximately 38-mile long Burntlog Route mine access road will be outside the project ambient air boundary and open to the public. Traffic emissions on public roads generally are considered to be part of background concentrations. Therefore, emissions on the Burntlog Route mine access road that are outside of the project boundary are not included in the SGP analyses. However, the emissions associated with the portion of the Burntlog Route mine access road that is within project boundary (from the south gate to the process area) are included in the SGP analyses. These include dust emissions generated from travel of maintenance equipment, light-duty pickup trucks and buses used for employee, visitor, and contractor transportation, and heavy-duty trucks used for cargo (including fuel, consumables, machine parts, ore processing supplies, ore concentrate, etc.) and services (including food supplies, trash, recyclables, etc.) transportation.

The emission estimation methods were based on activity-specific emission factors (EF) and techniques provided in governmental, scientific, and industry technical documents, including, but not limited to, the following:

- EPA AP-42: "Compilation of Air Pollutant Emission Factors" and associated background documents (EPA 1995)
- Published emission estimation reports (including reports from the EPA and other environmental experts) (Card, T. 2009) (Eckley 2010) (EPA 1994) (EPA 2009) (Schmidt 2010)
- EPA emission estimation models, such as TANKS (EPA 1999)
- Applicable regulatory emission requirements from Title 40 of the Code of Federal Regulations (CFR 2018a) (CFR 2018b) (CFR 2018c)
- EPA reference method performance test data or permit limits from similar gold ore processing operations (APT 2009) (APT 2010) (APT 2013) (APT 2016) (APT 2017) (NDEP 2012) (NDEP 2015a) (NDEP 2015b) (NDEP 2016)
- Other technical documents (Air Sciences 2018) (Air Sciences 2020) (Caterpillar 2011) (Caterpillar 2016) (Maerz 2018)

A bibliography of the information sources listed in this section is detailed in the References section (Section 8.0) of this report.

4.1 Emission Factors and Controls

The emission factors and controls used to calculate process and fugitive emissions are discussed in the following sections.

4.1.1 Emission Factors

The AP-42 EF used to calculate the process source emissions are provided in Table 9.

Table 9. Process Source EF from AP-42

Source/Activity	Pollutant	EF	Pollutant	Reference
Material transfer, controlled	$PM_{2.5}$ PM_{10}	0.000013 0.000046	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); conveyor transfer, controlled.
Material transfer, uncontrolled	$PM_{2.5}$ PM_{10}	0.00017 0.0011	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); conveyor transfer, uncontrolled(1).
Material crushing, controlled	$PM_{2.5}$ PM_{10}	0.0001 0.00054	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); tertiary crushing, controlled.
Material crushing, uncontrolled	$PM_{2.5}$ PM_{10}	0.00036 0.0024	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); tertiary crushing, uncontrolled(1).
Material screening, controlled	$PM_{2.5}$ PM_{10}	0.00005 0.00074	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); screening, controlled.
Material screening, uncontrolled	$PM_{2.5}$ PM_{10}	0.00132 0.0087	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-2 (08/04); screening, uncontrolled(1).
Ball mill, controlled with fabric filter	$PM_{2.5}$ PM_{10}	0.0121 0.0339	$PM_{2.5}$ PM_{10}	AP-42, Table 11.19.2-4 (08/04); dry grinding with fabric filter.
Lime kiln, controlled with fabric filter	CO NO_X $PM_{2.5}$ PM_{10} SO_2	0.45 0.24 0.13 0.13 0.0012	CO NO_X $PM_{2.5}$ PM_{10} SO_2	AP-42 Tables 11.17-2 (5× PM EF), 6; gas-fired parallel flow regenerative kiln with fabric filter.
Lime crushing, controlled with fabric filter	$PM_{2.5}$ PM_{10}	0.0121 0.0339	$PM_{2.5}$ PM_{10}	AP-42 Table 11.19.2-4; dry grinding with fabric filter.
Lime transfer, controlled with fabric filter	$PM_{2.5}$ PM_{10}	0.00088 0.00088	$PM_{2.5}$ PM_{10}	AP-42 Table 11.17-4 (10× PM EF); crushed material conveyor transfer with fabric filter.
Lime/cement/shotcrete silo loading, pneumatic	$PM_{2.5}$ PM_{10}	0.00005 0.00034	$PM_{2.5}$ PM_{10}	AP-42, Table 11.12-2 (6/06); pneumatic loading, controlled(1).
Lime/cement/shotcrete silo unloading, uncontrolled	$PM_{2.5}$ PM_{10}	0.00042 0.0028	$PM_{2.5}$ PM_{10}	AP-42, Table 11.12-2 (6/06); weigh hopper loading, uncontrolled(1).
Prill silo loading/unloading, uncontrolled	$PM_{2.5}$ PM_{10}	0.00106 0.007	$PM_{2.5}$ PM_{10}	AP-42, Table 8.3-2 (7/93); bulk loading, uncontrolled(2).
Aggregate bin loading/unloading, uncontrolled	$PM_{2.5}$ PM_{10}	0.0005 0.0033	$PM_{2.5}$ PM_{10}	AP-42, Table 11.12-2 (6/06); aggregate transfer, uncontrolled.

Source/Activity	Pollutant	EF	Pollutant	Reference
Central mixer, controlled	$PM_{2.5}$	0.0008	$PM_{2.5}$	AP-42, Table 11.12-2 (6/06); central mixer, controlled.
	PM_{10}	0.0055	PM_{10}	
Propane-fired heater/boiler, uncontrolled	CO	7.5	CO	AP-42, Table 1.5-1 (7/08); industrial/commercial boilers; S = sulfur content = 15.9 gr/100ft^3.
	NO_X	13	NO_X	
	$PM_{2.5}$	0.7	$PM_{2.5}$	
	PM_{10}	0.7	PM_{10}	
	SO_2	0.1S	SO_2	
	VOC	0.8	VOC	

(1) $PM_{2.5}$ scaled from PM_{10} based on $PM_{2.5}$ to PM_{10} ratio provided in AP-42, Chapter 13.2.4.

(2) $PM_{2.5}$ and PM_{10} scaled from PM based on $PM_{2.5}$ to PM and PM_{10} to PM ratios provided in AP-42, Chapter 13.2.4.

Process source EF that were adopted from similar source test data or permit limits or applicable regulations are provided in Table 10.

Table 10. Process Source EF from Similar Source Test Data/Permit Limits or Regulations

Source/Activity	Pollutant	EF	Units	Reference
Antimony bagging	$PM_{2.5}$	0.118	lb/hr	Nevada Division of Environmental Protection (NDEP) permit for clay bagging operation (NDEP 2015b).
	PM_{10}	0.118	lb/hr	
Autoclave	H_2S	0.9	lb/hr	NDEP permits/test data for autoclaves at gold mine: $PM_{2.5}$, PM_{10}, SO_2 (NDEP 2012), H_2S (APT 2013), H_2SO_4 (APT 2010).
	H_2SO_4	0.007	lb/ton	
	$PM_{2.5}$	5.075	lb/hr	
	PM_{10}	5.075	lb/hr	
	SO_2	0.653	lb/hr	
Carbon regeneration kiln	CO	0.12	lb/hr	NDEP permit for carbon regeneration kiln at gold mine (NDEP 2012).
	NO_X	0.012	lb/hr	
	$PM_{2.5}$	0.42	lb/hr	
	PM_{10}	0.42	lb/hr	
	VOC	0.11	lb/hr	
Electrowinning cells and pregnant solution Tank	$PM_{2.5}$	0.07	lb/hr	Based on similar source stack test data and 5× safety factor (APT 2016)
	PM_{10}	0.07	lb/hr	
Mercury retort	$PM_{2.5}$	0.01	lb/hr	Based on similar source stack test and data 5× safety factor (APT 2017)
	PM_{10}	0.01	lb/hr	
Induction melting furnace	$PM_{2.5}$	2.84	lb/hr	IDAPA 58.01.01.701.
	PM_{10}	2.84	lb/hr	

The EF used to develop mining activity emissions are provided in Table 11.

Table 11. EF Used to Calculate Mining Emissions

Source/Activity	Pollutant	EF	Units	Reference
Drilling	$PM_{2.5}$	0.039	lb/hole	AP-42 Table 11.9-4 (7/98); drilling, overburden. PM EF × blasting scaling factors from AP-42 Table 11.9-1.
	PM_{10}	0.676	lb/hole	
Blasting	CO	67	lb/ton-ANFO	AP-42 Table 13.3-1 (2/80); ANFO.
	NO_X	1.8	lb/ton-ANFO	Commonwealth Scientific and Industrial Research Organization (CSIRO 2008).
	$PM_{2.5}$	9.6	lb/blast	AP-42 Table 11.9-1 (7/98); blasting, overburden.
	PM_{10}	167.2	lb/blast	
	SO_2	0.0036	lb/ton-ANFO	Mass balance: 6% diesel in ANFO, 15 ppm sulfur content in diesel.
Truck hauling (annual)	$PM_{2.5}$	0.24	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a and 2 (11/06).
	PM_{10}	2.38	lb/VMT	
Truck hauling (daily)[1]	$PM_{2.5}$	0.35	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a (11/06).
	PM_{10}	3.55	lb/VMT	
Truck loading	$PM_{2.5}$	1.5E-5	lb/ton	AP-42 Table 11.19.2-2 (8/04); truck loading. $PM_{2.5}$ scaled from PM_{10} based on $PM_{2.5}$ to PM_{10} ratio provided in AP-42, Chapter 13.2.4.
	PM_{10}	0.0001	lb/ton	
Truck unloading	$PM_{2.5}$	2.4E-6	lb/ton	AP-42 Table 11.19.2-2 (8/04); truck unloading. $PM_{2.5}$ scaled from PM_{10} based on $PM_{2.5}$ to PM_{10} ratio provided in AP-42, Chapter 13.2.4.
	PM_{10}	1.6E-5	lb/ton	
Dozing	$PM_{2.5}$	0.41	lb/hr	AP-4 Table 11.9-1 (7/98); bulldozing, overburden.
	PM_{10}	0.75	lb/hr	
Grading	$PM_{2.5}$	0.13	lb/VMT	AP-4 Table 11.9-1 (7/98); grading.
	PM_{10}	1.29	lb/VMT	
Water truck (annual)	$PM_{2.5}$	0.20	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a and 2 (11/06).
	PM_{10}	2.04	lb/VMT	
Water truck (daily)	$PM_{2.5}$	0.30	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a (11/06).
	PM_{10}	3.04	lb/VMT	
Access road (annual)	$PM_{2.5}$	0.08	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a and 2 (11/06).
	PM_{10}	0.85	lb/VMT	
Access road (daily)	$PM_{2.5}$	0.13	lb/VMT	AP-42 Chapter 13.2.2, Eq. 1a (11/06).
	PM_{10}	1.26	lb/VMT	
Construction during exploration	$PM_{2.5}$	0.064	ton/acre/month	AP-42 Page 13.2.3-1 01/95); wet drilling. $PM_{2.5}$ and PM_{10} scaling factors from AP-42, Chapter 13.2.4.
	PM_{10}	0.42	ton/acre/month	
Wet drilling	$PM_{2.5}$	0.0092	lb/hole	AP-42 Table 11.19.2-2 (8/04). $PM_{2.5}$ fraction from AP-42, Chapter 13.2.4.
	PM_{10}	0.061	lb/hole	

[1] A conservatism analysis for the unpaved road emission factor equation is provided in Appendix A. This analysis also addresses road silt content and mean vehicle weight.

The following emission calculation methods were used in addition to the EF provided in Tables 9 through 11:

- The stationary internal combustion engine (emergency generators and a fire pump) emissions were calculated based on applicable EF from new source performance standards, depending on engine specifications.

- Fuel storage tank (diesel and gasoline) emissions were calculated from the EPA TANKS program, version 4.0.9d (EPA 1999).

- Emissions from the use of xanthate and sodium cyanide reagents used in the ore processing facility have potential to produce carbon disulfide and cyanide compounds emissions, respectively. The calculation methods for these pollutants are as follows:

    - Emissions of carbon disulfide from the decomposition of xanthate used in the rougher flotation circuit were calculated based on measurements of carbon disulfide generation in a laboratory scale ore pulp flotation reactor detailed in a technical memorandum by Air Sciences Inc. (Air Sciences 2020).

    - Emissions of cyanide compounds from the use of sodium cyanide in the mill process tanks (cyanide detox tanks, carbon-in-pulp leach tanks, and carbon-in-leach tanks) and the carbon stripping and electrowinning processes were calculated based on cyanide measurements directed by EPA at several Nevada gold mines (Card, T. 2009) (EPA 2009) (Schmidt 2010) (APT 2009).

4.1.2 Emission Controls

The emission control techniques and associated control efficiencies used in the SGP emission inventory calculations are presented in Table 12.

Table 12. Control Techniques and Efficiencies in Emission Calculations

Source Category	Control	Efficiency
Unpaved roads	Chemical application	90%
	Watering (daily emissions only; annual emissions rely on the precipitation equation)	33%
Underground/ enclosed transfers	Enclosure	80%
Material handling	Water sprays/moisture carryover	Included in controlled EF
Silo loading	Bin vent	Included in controlled EF
Antimony bagging	Baghouse	Included in controlled EF
Autoclave	Wet scrubber	Included in controlled EF
Carbon kiln	Wet scrubber	Included in controlled EF

Source Category	Control	Efficiency
Induction melting furnace	Baghouse	Included in controlled EF
Central mixer	Bin vent or enclosure	Included in controlled EF
Lime ball mill	Fabric filter	Included in controlled EF
Lime kiln	Fabric filter	Included in controlled EF
Lime crushing	Fabric filter	Included in controlled EF
Lime silo transfers	Fabric filter	Included in controlled EF

The control efficiency on unpaved roads from watering and chemical suppressant application is based on AP-42 Chapter 13.2.2, and details are provided in a separate memorandum (Air Sciences 2018). A conservatism analysis of the control efficiencies attributed to watering and chemical suppressant application is provided in Appendix A. This conservatism analysis addresses the potential use of magnesium chloride as the chemical suppressant.

The 90 percent control efficiency was applied to the graders because they will be traveling on unpaved roads that have been treated (prior to grading) for dust control by periodic application of water and chemical dust suppressant. This is the same control efficiency applied to all traffic traveling on these unpaved roads.

Continuous application of water and chemical dust suppressant in front of a grader is not consistent with standard industry practices. Grading is an important part of road surface preparation prior to chemical application. Grading immediately following the chemical application may remove or displace the freshly applied suppressant, rendering it ineffective. Also, the displaced chemical may end up in roadside drains and/or vegetation creating environmental concerns. Following are excerpts from the U. S. Department of Transportation unpaved road management guidance that provides additional details.

"*The process of preparing an unpaved road before applying a chemical treatment generally follows standard procedures and uses standard road construction and maintenance equipment.*"

"*Spraying chemical treatments onto unprepared roads is a waste of time and money. The dust control effect will be short lived, ride quality will not be improved, and the road will soon require some form of maintenance, which will reduce the life of the treatment. Conversely, spraying a chemical treatment onto a well-prepared road should slow the rate of deterioration, providing improved and safer driving conditions for extended periods before maintenance is required. Prior to any spray-on application, shape the road to ensure an adequate crown is present, and then blade to provide a quality driving surface*" (U. S. DOT 2013).

Treatment of unpaved roads with chemical dust suppressant creates a hard-packed surface on the road, which reduces dust from forming. The purpose of road maintenance with graders is to smooth this surface with minimal disturbance to the treated crustal surface. In addition, grading

is typically performed when the road surface is moist, either from natural moisture (light rain, morning dew, etc.) or from watering. A moist surface is slightly softer and easier for the grader to smooth. Midas Gold's standard operating practice will be to visually assess the road surface moisture (wetness) prior to road maintenance grading. If surface moisture is insufficient for proper grading conditions, then a water truck will be called to wet the road surface.

In addition to road maintenance (smoothing), graders at the SGP will also be used for road cleanup, i.e., removing snow and/or large rocks. Road cleanup is conservatively assumed (in the emission inventory) to emit the same amount of dust as road maintenance grading, even though it is expected to create significantly less dust.

With respect to continuous application of water spray, this is also potentially wasteful and impractical to implement. Midas Gold will apply water for dust suppressant, as needed, to control dust with reasonable precautions, as prescribed in IDAPA 58.01.01.650.

Lastly, it is important to note that the emission inventory uses the AP-42 Section 11.9 emission factor equations for grading, and these equations "*conservatively overestimate*" the "*grading emission factors*" (MRI 1998).

The 80 percent control efficiency for the underground/enclosed material transfers was calculated from the wind speed-based material handling emission calculation empirical equation (Equation 1) provided in AP-42 Chapter 13.2.4. Using this equation, material handling EF were calculated for the average onsite SGP wind speed of 5.17 miles per hour (mph) and the lowest wind speed applicable to this equation at 1.3 mph. The control efficiency was calculated as:

$$Control\ Efficiency\ (\%) = 1 - \frac{AP - 42\ 13.2.4\ Eq1\ EF_{1.3\ mph}}{AP - 42\ 13.2.4\ Eq1\ EF_{5.17\ mph}}$$

For the remaining control techniques listed in Table 12, controlled EF were used instead of applying control efficiencies to uncontrolled EF.

The EF and control efficiencies described in this section were chosen based on the following criteria: representativeness to the activity being characterized, prior use in similar projects, robustness of the scientific techniques used in their derivation, and the entity (e.g., EPA) publishing the information. As described in this section, most of the EF and control efficiencies stem from published EPA data, models, regulations, and test methods. This information was supplemented with data from air permits for similar sources, scientific papers, and relevant technical information.

4.2 Pollutant Emissions

For the SGP analyses, several modeling scenarios were considered to evaluate the worst-case air impacts from the SGP facility. The different modeling scenarios are discussed in Section 4.3. The annual potential emissions summary for each criteria pollutant and HAP (including TAP) for the highest emission modeling scenario (Section 4.3) is provided in Table 13. Hg emissions are provided in units of pounds per year (lb/yr); all other emissions are provided in units of ton/yr.

Table 13. Maximum Annual Potential Emissions Summary

Source Category	CO	NO_X	$PM_{2.5}$	PM_{10}	SO_2	VOC	Pb	HAP[1]	Hg
	(ton/yr)								(lb/yr)
Process and ancillary	30.5	37.9	36.4	56.3	6.5	4.8	0.0003	1.8	24.9
Mining fugitive	635.8	17.1	98.9	985.6	0.03	--	--	0.004	7.1
SGP Total	666.3	55.0	135.3	1,041.9	6.53	4.8	0.0003	1.804	32.0

[1] Includes Pb and Hg. Maximum facility-wide potential emissions for a single HAP are 0.97 ton/yr for cyanide compounds.

It is important to note that the process and ancillary source emissions remain the same for each modeling scenario discussed in Section 4.3.

4.3 Modeling Scenarios

As discussed in Section 2.1, conventional open-pit methods will be used to extract ore and DR from three pits: YPP, HFP, and WEP, and legacy tailings from BT. Ore will be hauled to the crushing area, and the DR will be moved to four DRSF: Yellow Pine (YPDRSF), Hangar Flats (HFDRSF), West End (WEDRSF), and Fiddle (FDRSF). The SGP site layout provided in Figure 4 shows these facilities' locations.

Midas Gold plans for an up to three-year construction schedule to build mine site facilities and infrastructure, as well as the power transmission line, followed by 12 years of mining operations (i.e., LOM Years 1 through 12). Depending on the mine design and operating schedule, mining activity rates will vary temporally and spatially during the 12 years of mine production and operation. For example, ore production varies from approximately 6.8 MMton in LOM Year 1 (67% in YPP, 26% in WEP, and 7% in BT) to 9 MMton in LOM 3 (78% in YPP, 10% in BT, 7% in WEP, and 5% in HFP). Similarly, DR production varies from approximately 4.8 MMton in LOM Year 12 (100% in WEP) to 34 MMton in each of LOM Years 4 through 9, with varying distribution among the four DRSF for each LOM Year. The total material (ore and DR) production varies from approximately 12.5 MMton in LOM Year 12 to 42.7 MMton in LOM Year 4.

Similar to the material production, the distribution and hauling of DR to the four destinations (YPDRSF, HFDRSF, WEDRSF, FDRSF) also will vary for each LOM year. Depending on the material origin (pits and BT) and destination (crushing area and DRSF), material hauling distances also will vary for each LOM year.

Therefore, depending on material production rates and origin, DR destination, and hauling distances, mining emissions will vary spatially and temporally throughout the mine life. For permitting purposes, Midas Gold has decided to use a maximum production rate of 180,000 tons of material (ore and/or DR) per day, for an annual production rate of 65.7 MMton/yr. This annual production rate is more than 50% higher than the estimated maximum total material production rate of 42.7 MMton/yr. A conservatism analysis of the mining production rate is provided in Appendix A.

In order to allow Midas Gold with operation flexibility and to capture variability in material origin and destination in the air quality analyses, several pit scenarios were developed for the SGP air quality analyses. Each pit scenario uses the maximum production rate of 180,000 ton/day in a single pit and uses a single material destination. Each pit has a dedicated ore scenario that assumes all material produced is ore and is hauled to the crusher area; and depending on mine design multiple DR destination scenarios each assuming all material produced is DR and is transported to a single DRSF. For example, most of the DR from HFP will be moved to HFDRSF and during LOM Years 2 through 10, but a fraction of this rock will be moved to FDRSF during LOM Years 3 and 8, and a fraction to YPDRSF during LOM Year 9. Therefore, in order to evaluate all hauling scenarios originating from HFP, the following four (one for ore hauling, three for DR hauling) HFP scenarios were modeled:

1. HFP Scenario 1 – 180,000 ton/day of ore produced and hauled to the crusher area
2. HFP Scenario 2 – 180,000 ton/day of DR produced and hauled to the FDRSF
3. HFP Scenario 3 – 180,000 ton/day of DR produced and hauled to the HFDRSF
4. HFP Scenario 4 – 180,000 ton/day of DR produced and hauled to the YPDRSF

Overall, 14 scenarios were modeled for $PM_{2.5}$ and PM_{10} analyses to cover all possible origin and destination combinations. Each modeling scenario included processing and ancillary source potential emissions discussed in this section and shown in Table 13. The multiple scenarios modeled for $PM_{2.5}$ and PM_{10} analyses are presented in Table 14. This table also shows the six origin/destination options that are not applicable to the Project as denoted by "0 ton/day."

Table 14. Modeling Scenarios for $PM_{2.5}$ and PM_{10} Analyses

Scenario ID	Pit/Origin (ton/day)				Ore Destination (ton/day)	DR Destination (ton/day)			
	YPP	HFP	WEP	BT	STKP	FDRSF	HFDRSF	YPDRSF	WEDRSF
Y1	180,000	--	--	--	180,000	--	--	--	--
Y2	180,000	--	--	--	--	180,000	--	--	--
Y3	180,000	--	--	--	--	--	180,000	--	--
Y4	0	--	--	--	--	--	--	0	--
Y5	0	--	--	--	--	--	--	--	0
H1	--	180,000	--	--	180,000	--	--	--	--
H2	--	180,000	--	--	--	180,000	--	--	--
H3	--	180,000	--	--	--	--	180,000	--	--
H4	--	180,000	--	--	--	--	--	180,000	--
H5	--	0	--	--	--	--	--	--	0
W1	--	--	180,000	--	180,000	--	--	--	--
W2	--	--	180,000	--	--	180,000	--	--	--
W3	--	--	180,000	--	--	--	180,000	--	--
W4	--	--	180,000	--	--	--	--	180,000	--
W5	--	--	180,000	--	--	--	--	--	180,000
B1	--	--	--	180,000	180,000	--	--	--	--
B2	--	--	--	180,000	--	--	180,000	--	--
B3	--	--	--	0	--	0	--	--	--
B4	--	--	--	0	--	--	--	0	--
B5	--	--	--	0	--	--	--	--	0

Scenario Y4 is not applicable because the YPDRSF and the YPP are in the same area; therefore, the pit cannot be backfilled with development rock until after mining of the pit is completed. Scenarios Y5 and H5 are not applicable because the WEDRSF will only be utilized by the WEP because of its proximity; it is only accessible from the WEP. Scenarios B3, B4 and B5 are not applicable because the development rock from the BT will only be hauled to the HFDRSF because of its proximity. All other development rock storage facilities are significantly farther away from BT.

The fugitive CO, NO_2, and SO_2 emissions are limited to pits only, and they do not vary by ore and/or DR hauling and destinations. Therefore, for these pollutants, one scenario for each pit, including processing and ancillary source potential emissions, was modeled, i.e., scenarios Y1, H1, W1, and B1.

The TAP emissions are limited to processing and ancillary sources, so a single scenario was modeled for each applicable TAP analysis.

4.4 Modeled Sources and Characterization

All emission sources and activities described in previous sections were included in the modeling analyses for SGP. Source characterization and parameters for model input for different source categories are discussed in this section.

4.4.1 Processing, Refining, and Ancillary Sources

The processing, refining, and ancillary sources with exhaust stacks, such as baghouse-equipped sources, generators, process and building heaters, autoclave, retort, smelting furnace, carbon kiln, lime kiln, etc., were modeled as POINT sources. The process sources without exhaust stacks, such as material transfers, ore screening and crushing, etc., were modeled as VOLUME sources. A plot plan showing the processing and refining area buildings and sources is provided in Figure 5. Process and ancillary source model input physical parameters and associated documentation are provided in Appendix B.

4.4.2 Fugitive Sources: Blasting, Material Origin and Destination and Underground Exploration Emissions

Blasting emissions were represented by a VOLUME source located inside a pit. Each material origin location (YPP, HFP, WEP, BT) was modeled as an AREA source and comprised appropriate emissions from drilling, material loading, dozing, and surface exploration. Ore destination – crusher area was modeled as a VOLUME source and comprised ore unloading emissions. Each DR destination (FDRSF, HFDRSF, YPDRSF, WEDRSF) was modeled as a VOLUME source comprising appropriate emissions from DR unloading, dozing, and wind erosion. Emissions from underground core sampling drilling (UGEXP) in the Scout prospect decline were represented by an AREA source characterized by the portal opening dimensions.

Model input physical characteristics for blasting and possible material origin and destination locations, and Scout portal are presented in Table 15. This table also shows the source type and associated dimensions for each of the modeled fugitive source/location.

The VOLUME source dimensions for blasting provided in Table 15 were based on an estimated blast area. For the remaining AREA and VOLUME sources listed in Table 15, the dimensions were developed by reasonably fitting an equal-area rectangle within the actual footprint of each fugitive source.

Blasting is not expected to occur in BT. However, blasting emissions were modeled in BT (BTBL) per IDEQ's suggestion in order to streamline the permitting process.

Figure 5. Processing and Refining Area Building and Source Layout

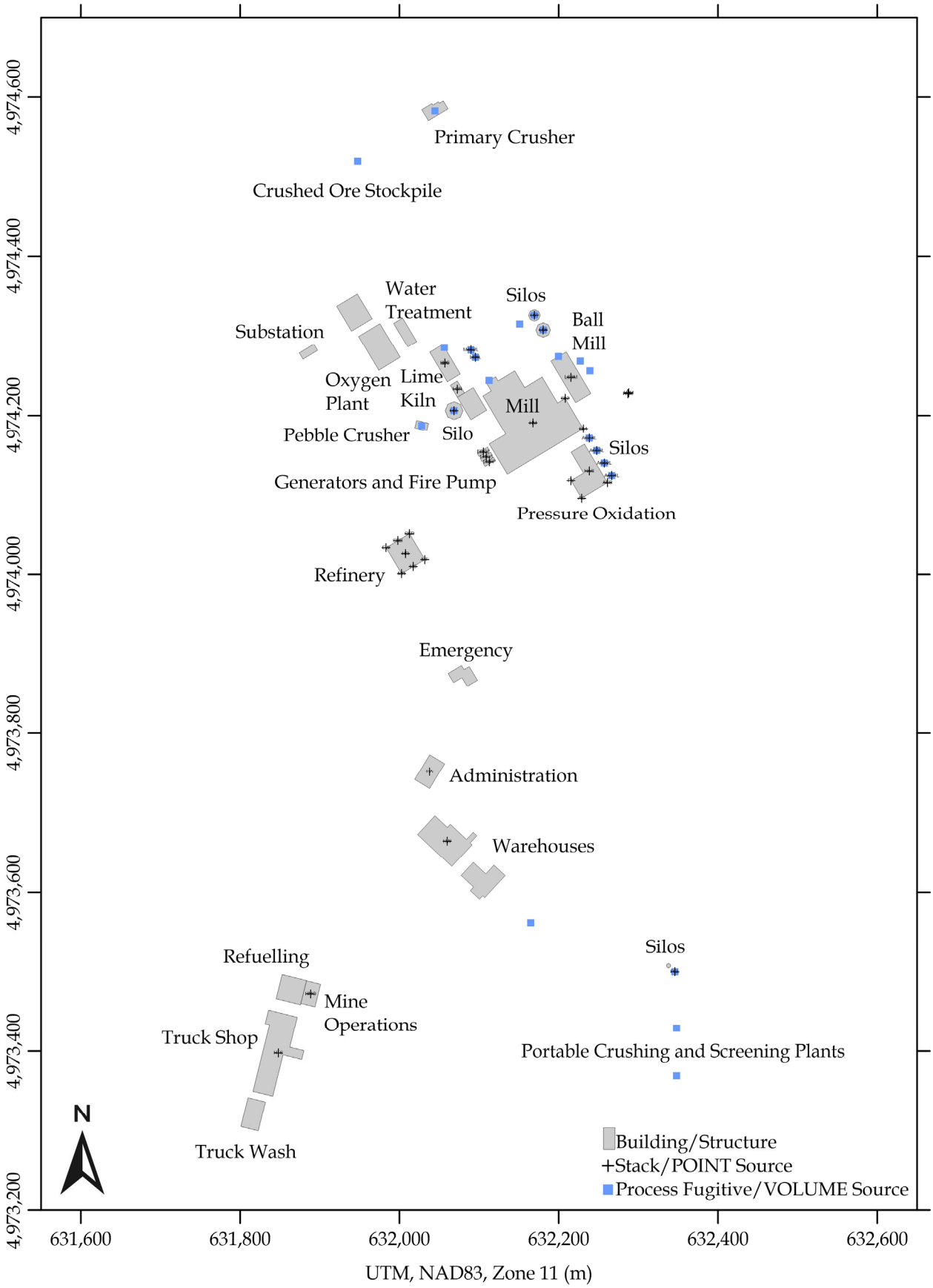


Table 15. Modeled Fugitive Activity Locations

Model ID	Activity Location	Type	Lateral Dimensions (m)	Emission Sources
YPP	Yellow Pine Pit	AREA	882 × 882	Drilling, loading, dozing, surface exploration
HFP	Hangar Flats Pit	AREA	491 × 491	Drilling, loading, dozing, surface exploration
WEP	West End Pit	AREA	376 × 376	Drilling, loading, dozing, surface exploration
BT	Bradley Tailings	AREA	820 × 420	Loading, dozing, wind erosion
YPPBL	Yellow Pine Pit (Blasting)	VOLUME	87 × 87	Blasting
HFPBL	Hangar Flats Pit (Blasting)	VOLUME	87 × 87	Blasting
WEPBL	West End Pit (Blasting)	VOLUME	87 × 87	Blasting
BTBL	Bradley Tailings (Blasting)	VOLUME	87 × 87	Blasting
STKP	PC Stockpile	VOLUME	229 × 229	Unloading, dozing, wind erosion
FDRSF	Fiddle DRSF	VOLUME	775 × 775	Unloading, dozing, wind erosion
HFDRSF	Hangar Flats DRSF	VOLUME	752 × 752	Unloading, dozing, wind erosion
YPDRSF	Yellow Pine DRSF	VOLUME	784 × 784	Unloading, dozing, wind erosion
WEDRSF	West End DRSF	VOLUME	533 × 533	Unloading, dozing, wind erosion
UGEXP	Scout Portal	AREA	4.9 × 4.9	Sample core drilling

The model input physical parameters for blasting, material origin and destination locations, and Scout portal are provided in Table 16.

Table 16. Model Input Parameters for Fugitive Activity Locations

Model ID	Base Elevation (m)	Release Height (m)	Initial Lateral Dispersion (m)	Initial Vertical Dispersion (m)
YPP	1,832.4	4.7	N/A	4.4
HFP	1,993.3	4.7	N/A	4.4
WEP	2,191.8	4.7	N/A	4.4
BT	2,011.7	4.7	N/A	4.4
YPPBL	1,717.2	15.0	20.2	7.0
HFPBL	1,890.6	15.0	20.2	7.0
WEPBL	1,994.0	15.0	20.2	7.0
BTBL	2,011.7	15.0	20.2	7.0
STKP	1,979.8	4.7	53.3	4.4
FDRSF	2,115.2	4.7	180.2	4.4

Model ID	Base Elevation (m)	Release Height (m)	Initial Lateral Dispersion (m)	Initial Vertical Dispersion (m)
HFDRSF	2,079.8	4.7	174.8	4.4
YPDRSF	1,904.1	4.7	182.2	4.4
WEDRSF	2,376.5	4.7	124.1	4.4
UGEXP	2,018.0	0	N/A	0

The blasting physical parameters were developed from dimensions (provided in Table 15) based on blast area used in the emission calculation. The blasting release height is the midpoint of the blasting height (30 m).

The initial lateral and vertical dispersion dimensions for blasting were calculated per methods specified in (EPA 2018d), as:

$$Initial\ Lateral\ Dispersion\ = \frac{Width\ (87\ m)}{4.3}$$

$$Initial\ Vertical\ Dispersion\ = \frac{Height\ (30\ m)}{4.3}$$

For the pit and DRSF fugitive activity locations listed in Table 15, i.e., YPP, HFP, WEP, BT, FDRSF, HFDRSF, and WEDRSF, the release height was based on the haul truck height (weighted based on model-specific usage) and calculated using the recommendations provided in the Haul Road Workgroup Report (EPA 2012), as:

$$Release\ Height = \frac{Plume\ Top\ (Weighted\ Truck\ Height\ \times 1.7)}{2}$$

The applicable initial lateral dispersion for each VOLUME source was calculated from the respective shorter dimension and EPA-specified methods (EPA 2018d) (EPA 2016) as follows:

$$Initial\ Lateral\ Dispersion\ = \frac{Shorter\ Lateral\ Dimension}{2.15}$$

The applicable initial vertical dispersion for each AREA and VOLUME source was calculated from the respective vertical dimension and EPA-specified methods (EPA 2018d) (EPA 2016) as follows:

$$Initial\ Vertical\ Dispersion\ = \frac{Plume\ Top\ (Weighted\ Truck\ Height\ \times 1.7)}{2.15}$$

Scout portal was modeled as a surface-based AREA source with zero release height.

4.4.3 Fugitive Sources: Haul Roads

A representative haul road network for hauling material from inside the pit (or origin) to various destinations was developed for each pit scenario provided in Table 14. The haul road network is presented in Figure 6.

As shown in Figure 6, the haul road network was divided into 22 sections, A through V. Each section was further divided into multiple segments with a length equal to twice the adjusted haul road width of 32.5 m (26 m road width plus 6 m (EPA 2012)). Each of the segments was characterized as an individual VOLUME source in the model, with a release height of 4.75 m (weighted-average truck height times 1.7, divided by 2 (EPA 2012)), an initial lateral dispersion of 15.1 m (adjusted road width divided by 2.15 (EPA 2012)), and an initial vertical dispersion of 4.42 m (weighted-average top-of-plume height divided by 2.15 (EPA 2012)). Material hauling emissions associated with each origin-destination route were assigned to each segment along the route based on estimated total emissions along the route and traffic distribution along each section, as provided in Table 17 for the five HFP scenarios.

Figure 6. Haul Road Network and Sections

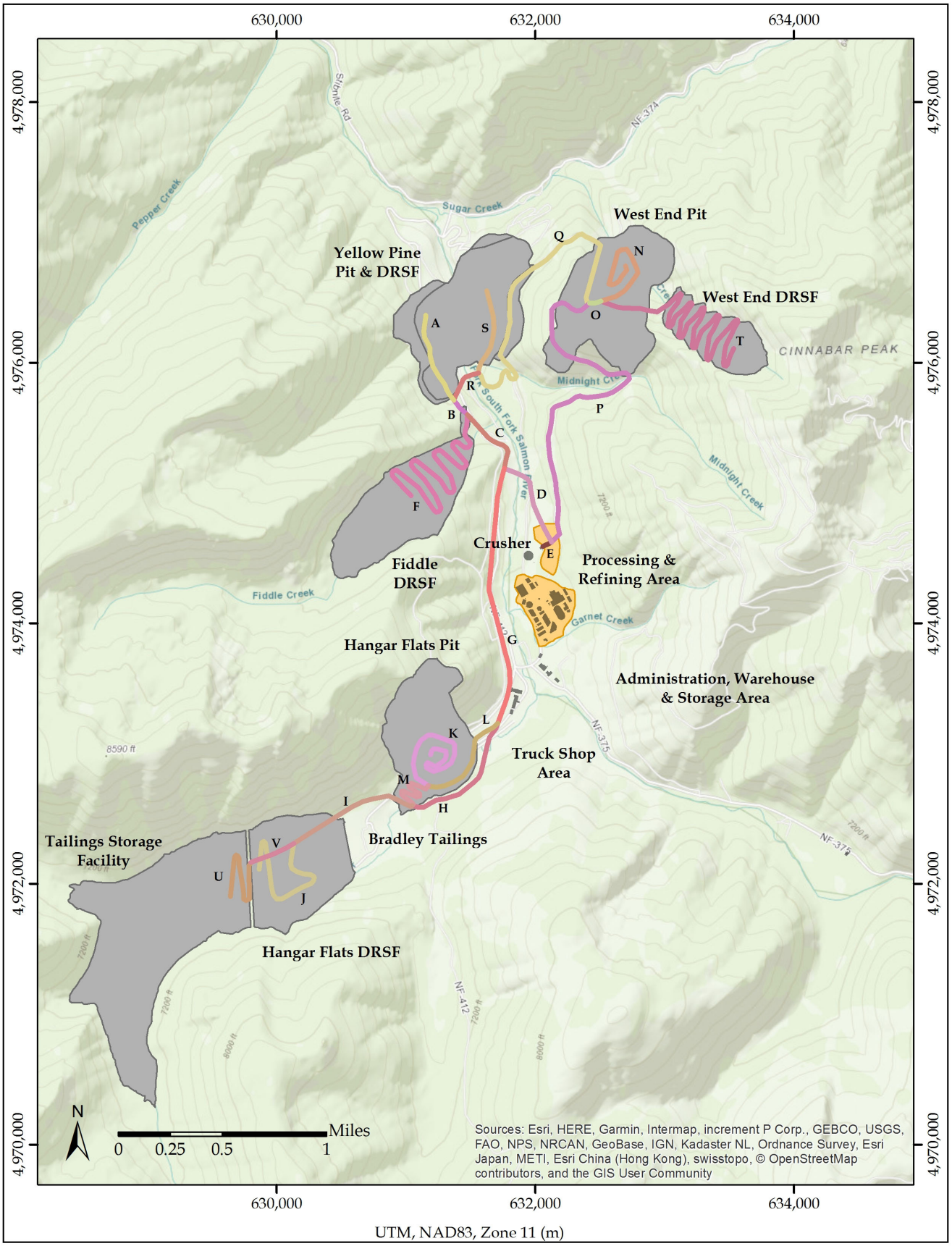


Table 17. Haul Road Emission Distribution Grid for HFP Scenarios

Pit Scenario		H1	H2	H3	H4
Route: Origin-Destination		HFP-STKP	HFP-FDRSF	HFP-HFDRSF	HFP-YPDRSF
Segment Emission Denominator		96	148	87	115
Section	**No. of Segments**	**Traffic Distribution per Route**			
A	37	--	--	--	--
B	3	--	--	--	1
C	11	--	1	--	1
D	14	1	--	--	--
E	2	--	--	--	--
F	55	--	1	--	--
G	38	1	1	--	1
H	20	--	--	--	--
I	20	--	--	1	--
J	27	--	--	1	--
K	28	1	1	1	1
L	16	1	1	--	1
M	12	--	--	1	--
N	22	--	--	--	--
O	2	--	--	--	--
P	57	--	--	--	--
Q	49	--	--	--	--
R	6	--	--	--	1
S	13	--	--	--	1
T	72	--	--	--	--
U	19	--	--	--	--
V	7	--	--	--	--

The top row in Table 17 shows the pit scenarios, and the next two rows show hauling route and the associated segment emission denominator (SED) used to distribute segment emissions along each route. The remainder of Table 17 presents the number of segments for each road section (shown in Figure 6) and the associated traffic distribution factor for each route. The emission distribution for each applicable segment is illustrated in the following example.

Route: HFP–STKP (Hangar Flats pit to crusher stockpile): Figure 6 shows that material from HFP will be hauled to the crusher area following the route along Sections K, L, G, and D. All (100%) of the ore from HFP will travel on each of these sections; therefore, each of these sections has a traffic distribution factor of 1.0 for this route.

The SED for each route is the sum-product of the number of segments and traffic distribution for the applicable sections. The SED for the HFP–STKP route is calculated as:

$$SED_{(HFP-STKP)} = (28 \times 1) + (16 \times 1) + (38 \times 1) + (14 \times 1) = 96$$

Emissions for each section-segment were estimated by dividing the total emissions along the route by its SED and multiplying by the section distribution factor. For example, the emission rate for each of the 28 segments along Section K was calculated as:

$$Emission\ Rate - Section\ K_{\ (Segments\ 1-28)} = \frac{Total\ Emissions_{(HFP-STKP)}}{96} \times 1$$

4.4.4 Fugitive Sources: Burntlog Route Access Road

The access road portion within the operations boundary was characterized by a series of LINE sources laid along the actual route. These sources were assigned a release height of 3 m and an initial vertical dispersion of 2.8 m. These release parameters were based on an estimated average vehicle height of 3.5 m, which is representative of an overall approximation of anticipated vehicle heights (grader – 3.7 m, heavy-duty truck – 3.6 m, and pickup truck – 3.2 m) and the AREA source parameterization recommendations provided in the Haul Road Workgroup Report (EPA 2012). The AERMOD emission input units for AREA source are grams per meter square. The access road emissions were evenly distributed along the road by dividing the total access road emissions by its total area, i.e., the Burntlog Route section within the operations boundary (2,950 m) multiplied by the road width (6.1 m).

4.5 Short- and Long-Term Emissions for Model Input

Short-term (up to 24-hour averaging period) model input emission rates for the process sources, including ore processing, refining, and other support activities, were based on the equipment/process-specific maximum hourly or daily design throughput rates. Short-term model input emission rates for the fugitive sources associated with mining activity were based on short-term activity rates provided in Table 8. Long-term (annual) model input rates for both process and fugitive sources were based on continuous operation (24 hours per day, 365 days per year) and the respective maximum hourly or daily throughput rates.

☒ *The modeling emissions inventory and the emissions inventory presented in other parts of the permit application are consistent, and if they are not identical numbers, it is clearly shown, with calculations submitted, how the modeled value was derived from the value provided in the emissions inventory.*

4.6 Criteria Pollutants

The criteria pollutant emission rates used in the modeling analyses described in this section were determined as described in Sections 4.0 through 4.5.

4.6.1 Modeled Emission Rates for Significant Impact Level Analyses

Based on the magnitude of the facility-wide emissions and preliminary modeling analyses, it was determined that the impacts from the SGP emissions exceeded the Significant Impact Levels (SIL) for most criteria pollutants. Therefore, SIL analyses were considered redundant and not performed for this report.

4.6.2 Modeled Emission Rates for Cumulative Impact Analyses

The modeled emission rates used in the cumulative impact analyses were determined as described in Sections 4.0 through 4.5, and the emission calculation details are provided in Appendix B. For 1-, 3-, and 8-hour averaging times, hourly emission rates provided in pounds per hour were used. For 24-hour averaging time, daily emission rates provided in pounds per day were used. For the annual averaging time, annual emission rates provided in tons per year were used. The total model input emission rates (highest emission scenario) are shown in Table 18.

Table 18. Criteria Pollutant Modeled Emission Rates

Pollutant	Averaging Time	Emissions[1]	
CO	8 hours	1,775.50	lb/hr
	1 hour	1,775.50	lb/hr
NO_2	1 year	54.93	ton/yr
	1 hour	58.07	lb/hr
$PM_{2.5}$	1 year	135.23	ton/yr
	24 hours	781.69	lb/day
PM_{10}	24 hours	5,768.93	lb/day
SO_2	3 hours	1.97	lb/hr
	1 hour	1.97	lb/hr

[1] Combined process, ancillary, and fugitive emissions modeled. Fugitive emissions vary by pit scenario, maximum pit scenario emissions are shown.

The nearest significant permitted facility to SGP is Tamarack Mill, located more than 75 km west. This facility is located too far away to cause a significant concentration gradient along the periphery of the SGP and was therefore not included in the cumulative impact analyses for SGP.

☒ *Emissions rates in Appendix B are identical to those in the model input files for the cumulative NAAQS impact analyses.*

☒ *Calculation of modeled emissions are thoroughly documented in Appendix B, and any unique handling of emissions in the model have been described.*

4.6.3 NO_2/NO_X Ratio for NO_X Chemistry Modeling

The default option of the Ozone Limiting Method (OLM), a third-tier method from 40 CFR 51, Appendix W, was used to estimate the NO_2 1-hour and annual impacts for these analyses. The OLM method requires an input of in-stack NO_2/NO_X ratio for each modeled source.

An in-depth literature review was conducted to identify reasonable NO_2/NO_X ratios for different combustion source categories. Based on this research, the NO_2/NO_X ratio recommended for the heavy-duty diesel trucks in the California Air Pollution Control Officers Association (CAPCOA) Guidance Document (CAPCOA 2011) was selected for stationary diesel combustion sources. This NO_2/NO_X ratio (11 percent) is conservatively higher than the diesel combustion NO_2/NO_X ratio provided in the EPA ISR (In-Stack Ratio) database: 6 percent average, 9.8 percent maximum. The CAPCOA document and the EPA ISR database do not provide an NO_2/NO_X ratio for propane boilers. The CAPCOA-recommended NO_2/NO_X ratio for natural gas boilers was selected for the propane boilers. The natural gas boilers NO_2/NO_X ratio is considered appropriate for the propane boilers because both are gaseous fuels with relatively similar combustion characteristics and are expected to have similar NO_2/NO_X ratios. The NO_2/NO_X ratio for blasting is based on blasting plume measurements provided in the Australian study (CSIRO 2008). The NO_2/NO_X ratios used for the SGP NO_2 analyses are presented in Table 19.

Table 19. NO_2/NO_X Ratios

Source Type	NO_2/NO_X Ratio	Reference/Comments
Blasting	0.036	Commonwealth Scientific and Industrial Research Organization (CSIRO 2008)
Diesel Engines	0.11	CAPCOA Guidance Document, heavy-duty diesel trucks (CAPCOA 2011)
Propane Heaters	0.10	CAPCOA Guidance Document, natural gas boilers (CAPCOA 2011)

4.6.4 Special Methods for Modeling Criterial Pollutant Emissions

- Multiple pit scenarios were modeled, as described in Section 4.3.
- The alternately processed meteorological dataset described in Section 5.2 was used for the select analyses addressed in Section 6.1.

4.7 Toxic Air Pollutants

SGP facility-wide TAP emissions for different source categories are provided in Table 5. TAP emissions from propane-fired heaters were calculated using the emission factors provided in AP-42, Tables 1.4-3 and 1.4-4. These emission factors along with estimated TAP emissions for propane-fired heaters at SGP are provided in Table 20.

Table 20. Propane Combustion TAP Emission Factors and Emissions

CAS No.	TAP	Emission Factor (lb/MMScf)	Emission Factor (lb/MMBtu)[1]	Emissions (lb/hr)	Emissions (ton/yr)
56-49-5	3-Methylchloranthrene	< 1.8E-06	1.76E-09	1.19E-07	3.64E-07
7440-38-2	Arsenic	2.0E-04	1.96E-07	1.32E-05	4.04E-05
71-43-2	Benzene	2.1E-03	2.06E-06	1.39E-04	4.25E-04
50-32-8	Benzo(a)pyrene	< 1.2E-06	1.18E-09	7.93E-08	2.43E-07
7440-41-7	Beryllium	< 1.2E-05	1.18E-08	7.93E-07	2.43E-06
7440-43-9	Cadmium	1.1E-03	1.08E-06	7.26E-05	2.22E-04
7440-47-3	Chromium	1.4E-03	1.37E-06	9.25E-05	2.83E-04
7440-48-4	Cobalt	8.4E-05	8.24E-08	5.55E-06	1.70E-05
106-46-7	Dichlorobenzene	1.2E-03	1.18E-06	7.93E-05	2.43E-04
50-00-0	Formaldehyde	7.5E-02	7.35E-05	4.95E-03	1.52E-02
110-54-3	Hexane	1.8E+00	1.76E-03	1.19E-01	3.64E-01
7439-96-5	Manganese	3.8E-04	3.73E-07	2.51E-05	7.69E-05
91-20-3	Naphthalene	6.1E-04	5.98E-07	4.03E-05	1.23E-04
7440-02-0	Nickel	2.1E-03	2.06E-06	1.39E-04	4.25E-04
7782-49-2	Selenium	< 2.4E-05	2.35E-08	1.59E-06	4.85E-06
108-88-3	Toluene	3.4E-03	3.33E-06	2.25E-04	6.88E-04
109-66-0	Pentane	2.6E+00	2.55E-03	1.72E-01	5.26E-01
7440-39-3	Barium	4.4E-03	4.31E-06	2.91E-04	8.90E-04
7440-50-8	Copper	8.5E-04	8.33E-07	5.61E-05	1.72E-04
7439-98-7	Molybdenum	1.1E-03	1.08E-06	7.26E-05	2.22E-04
7440-62-2	Vanadium	2.3E-03	2.25E-06	1.52E-04	4.65E-04
7440-66-6	Zinc	2.9E-02	2.84E-05	1.92E-03	5.86E-03

[1] Based on 1,020 million British thermal units (MMBtu) per million standard cubic feet (MMScf) per Table 1.4-3 footnote a.

TAP emissions from cement handling were calculated using the uncontrolled emission factors provided in AP-42, Table 11.12-8. These emission factors along with estimated TAP emissions from cement handling at SGP are provided in Table 21.

Table 21. Cement Handling TAP Emission Factors and Emissions

CAS No.	TAP	EF	Emissions	
		(lb/ton)	(lb/hr)	(ton/yr)
7440-38-2	Arsenic	1.68E-06	2.69E-04	1.01E-04
7440-41-7	Beryllium	1.79E-08	2.86E-06	1.07E-06
7440-43-9	Cadmium	2.34E-07	3.74E-05	1.40E-05
7440-47-3	Chromium	2.52E-07	4.03E-05	1.51E-05
7439-96-5	Manganese	2.02E-04	3.23E-02	1.21E-02
7440-02-0	Nickel	1.76E-05	2.82E-03	1.06E-03
7723-14-0	Phosphorus	1.18E-05	1.89E-03	7.08E-04

TAP emissions from cement mixer were calculated using the uncontrolled emission factors provided in AP-42, Table 11.12-7. These emission factors along with estimated TAP emissions from cement mixer at SGP are provided in Table 22.

Table 22. Cement Mixer TAP Emission Factors and Emissions

CAS No.	TAP	EF	Emissions	
		(lb/ton)	(lb/hr)	(ton/yr)
7440-38-2	Arsenic	8.38E-06	1.68E-04	2.51E-04
7440-43-9	Cadmium	1.18E-08	2.36E-07	3.54E-07
7440-47-3	Chromium	1.42E-06	2.84E-05	4.26E-05
7439-96-5	Manganese	6.12E-05	1.22E-03	1.84E-03
7440-02-0	Nickel	3.28E-06	6.56E-05	9.84E-05
7723-14-0	Phosphorus	2.02E-05	4.04E-04	6.06E-04

TAP emissions from ore processing (dust emissions) were calculated using the ore TAP concentrations. These concentrations along with estimated TAP emissions from ore processing at SGP are provided in Table 23.

Table 23. Ore Processing TAP Concentrations and Emissions

CAS No.	TAP	Concentration	Emissions	
		(ppm)	(lb/hr)	(ton/yr)
7440-38-2	Arsenic	667	0.00392	0.01718
7440-41-7	Beryllium	3.2	0.00002	0.00008
7440-43-9	Cadmium	0.5	0.000003	0.00001
7440-48-4	Cobalt	4	0.00002	0.00010
7440-47-3	Chromium	9	0.00005	0.00023
7439-96-5	Manganese	299	0.00176	0.00770

CAS No.	TAP	Concentration	Emissions	
		(ppm)	(lb/hr)	(ton/yr)
7440-02-0	Nickel	2	0.00001	0.00005
7440-36-0	Antimony	23	0.00014	0.00059
7723-14-0	Phosphorus	650	0.00382	0.01675
7440-22-4	Silver	0.5	0.000003	0.00001
7440-39-3	Barium	800	0.00471	0.02061
7440-50-8	Copper	5	0.00003	0.00013
7439-98-7	Molybdenum	1	0.00001	0.00003
7440-28-0	Thallium	10	0.00006	0.00026
7440-61-1	Uranium	10	0.00006	0.00026

Antimony emissions from stibnite concentrate were calculated using the concentrate antimony concentration. The antimony concentration and estimated emissions from stibnite concentrate processing at SGP are provided in Table 24.

Table 24. Stibnite Concentrate Processing Antimony Concentration and Emissions

CAS No.	TAP	Concentration	Emissions	
		(ppm)	(lb/hr)	(ton/yr)
7440-36-0	Antimony	580,000	0.068	0.3

Emission factors and potential TAP emissions from the autoclaving process are provided in Table 25.

Table 25. Autoclave TAP Emission Factors and Emissions

CAS No.	TAP	Emission Factor [1]		Emissions	
				(lb/hr)	(ton/yr)
7783-06-4	Hydrogen Sulfide	0.9	lb/hr	0.9	3.9
7664-93-9	Sulfuric Acid	0.007	lb/ton	2.0	8.9

[1] (APT 2010) (APT 2013)

Potential TAP emissions from the reagents use are provided in Table 26.

Table 26. Reagent Use TAP Emissions

CAS No.	TAP	Emissions[1]	
		(lb/hr)	(ton/yr)
75-15-0	Carbon Disulfide	0.01	0.06
592-01-8	Cyanide Compounds	0.22	0.97

[1] (Air Sciences 2020) (Card, T. 2009) (EPA 2009) (Schmidt 2010) (APT 2009)

It is important to note that diesel engine TAP are regulated by 40 CFR 63, Subpart ZZZZ and therefore, exempt from TAP analysis per IDAPA 58.01.01 Section 210.20. Therefore, TAP emissions from diesel combustion were not included in TAP analyses for SGP.

The TAP modeling applicability determination provided in Table 5 shows that TAP analyses were required for arsenic, cadmium, formaldehyde, and nickel. All four TAP that require modeling are carcinogenic pollutants and require modeling for annual averaging time. The annual emission rates for TAP used for modeling are provided in Table 27.

Table 27. TAP Emissions Used for Modeling

CAS No.	TAP	Emissions	
7440-36-0	Antimony	0.0686	lb/hr
7440-38-2	Arsenic	0.0176	ton/yr
7440-43-9	Cadmium	0.0002	ton/yr
50-00-0	Formaldehyde	0.0152	ton/yr
7440-02-0	Nickel	0.0016	ton/yr
7664-93-9	Sulfuric Acid	2.03	lb/hr

☒ *TAP emissions rates have been listed for each TAP that has project cumulative emissions exceeding the applicable EL.*

☒ *Emissions rates in Table 27 are identical to those in the model input file for TAP analyses.*

4.8 Emission Release Parameters

The process and ancillary sources, along with their respective model identification codes, source types, and location coordinates, are listed in Table 28.

Table 28. Process and Ancillary Sources Modeled

Source Description	Model ID	Source Type	UTM East (m)	UTM North (m)	Elevation (m)
Mill Lime Silo #1 Loading	LS1L	POINT	632,095	4,974,272	1,992
Mill Lime Silo #2 Loading	MillS2L	POINT	632,090	4,974,282	1,990

Source Description	Model ID	Source Type	UTM East (m)	UTM North (m)	Elevation (m)
Sb Dryer (2.72 MMBtu/hr Propane-Fired)	Sb1	POINT	632,231	4,974,183	2,001
Sb Bagging	Sb2	POINT	632,208	4,974,221	2,001
Autoclave	AC	POINT	632,229	4,974,096	2,007
POX Boiler (17 MMBtu/hr Propane-Fired)	ACB	POINT	632,261	4,974,116	2,007
AC Lime Silo #1 Loading	ACS1L	POINT	632,267	4,974,124	2,007
AC Lime Silo #2 Loading	ACS2L	POINT	632,257	4,974,140	2,007
AC Lime Silo #3 Loading	ACS3L	POINT	632,248	4,974,156	2,007
AC Lime Silo #4 Loading	ACS4L	POINT	632,238	4,974,171	2,007
Carbon Regeneration Kiln (Drum)	CKD	POINT	632,013	4,974,051	1,970
Carbon Regeneration Kiln (Burners)	CKB	POINT	631,998	4,974,042	1,970
Electrowinning Cells and Pregnant Solution Tank	EW	POINT	631,983	4,974,033	1,970
Mercury Retort	MR	POINT	632,003	4,974,001	1,970
Induction Melting Furnace	MF	POINT	632,032	4,974,019	1,970
Camp Emergency Generator (Mfr. Yr. >2007; diesel)	EDG1	POINT	634,274	4,972,050	2,114
Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	EDG2	POINT	632,105	4,974,154	2,001
Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	EDG3	POINT	632,109	4,974,148	2,002
Mill Fire Pump (Mfr. Yr. >2009; diesel)	EDFP	POINT	632,113	4,974,141	2,003
Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	PV	POINT	632,216	4,974,118	2,007
Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	HS	POINT	632,017	4,974,010	1,970
Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	H1M	POINT	632,287	4,974,227	2,000
Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	H2M	POINT	632,288	4,974,228	2,000
Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	HM	POINT	632,168	4,974,191	2,001
Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	HAC	POINT	632,238	4,974,130	2,007
Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	HR	POINT	632,008	4,974,026	1,970
Admin HVAC Heater (0.25 MMBtu Propane-Fired)	HA	POINT	632,038	4,973,751	1,979
Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	HMO	POINT	631,889	4,973,472	1,989
Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	HTS	POINT	631,848	4,973,398	1,992
Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	HW	POINT	632,060	4,973,664	1,984
Prill Silos Loading (2 x 100 ton)	PSL	POINT	632,346	4,973,500	2,010
Cement/Shotcrete Silo #1 Loading	CS1L	POINT	632,095	4,974,272	1,992
Cement/Shotcrete Silo #2 Loading	CS2L	POINT	632,095	4,974,272	1,992

Source Description	Model ID	Source Type	UTM East (m)	UTM North (m)	Elevation (m)
Limestone transfer to Ball Mill Feed Bin	LS6	POINT	632,181	4,974,307	1,996
Limestone Ball Mill	LSBM	POINT	632,215	4,974,248	1,996
Limestone transfer to Kiln Feed Bin	LS9	POINT	632,169	4,974,325	1,996
Parallel Flow Regenerative (PFR) Shaft Lime Kiln	LK	POINT	632,057	4,974,265	1,984
PFR Shaft Lime Kiln Combustion	LKC	POINT	632,057	4,974,265	1,984
Lime Mill Crushing and associated transfers In and Out	LCR	POINT	632,073	4,974,233	1,990
Pebble Lime Silo Loading via Bucket Elevator	LSL	POINT	632,069	4,974,206	1,996
Loader Transfer of Ore to Grizzly	OC1	VOLUME	632,045	4,974,583	1,969
Grizzly to Apron Feeder	OC2	VOLUME	632,045	4,974,583	1,969
Apron Feeder to Dribble Conveyor	OC3	VOLUME	632,045	4,974,583	1,969
Apron Feeder to Vibrating Grizzly	OC4	VOLUME	632,045	4,974,583	1,969
Dribble Conveyor to Vibrating Grizzly	OC5	VOLUME	632,045	4,974,583	1,969
Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	OC6	VOLUME	632,045	4,974,583	1,969
Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	OC7	VOLUME	632,045	4,974,583	1,969
Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	OC8	VOLUME	631,947	4,974,520	1,957
Stockpile Transfers to Reclaim Conveyors	OC9	VOLUME	631,947	4,974,520	1,957
Reclaim Conveyors to SAG Mill Feed Conveyor	OC10	VOLUME	631,947	4,974,520	1,957
SAG Mill Feed Conveyor Transfer to SAG Mill	OC11	VOLUME	632,113	4,974,243	2,001
Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	OC12	VOLUME	632,028	4,974,187	1,973
Pebble Discharge Conveyor to SAG Mill Feed Conveyor	OC13	VOLUME	632,028	4,974,187	1,973
Mill Lime Silo #1 Unloading to SAG Mill Conveyor	LS1U	VOLUME	632,095	4,974,272	1,992
Mill Lime Silo #2 Unloading to SAG Mill Conveyor	MillS2U	VOLUME	632,090	4,974,282	1,990
AC Lime Silo #1 Unloading to Lime Slaker	ACS1U	VOLUME	632,267	4,974,124	2,007
AC Lime Silo #2 Unloading to Lime Slaker	ACS2U	VOLUME	632,257	4,974,140	2,007
AC Lime Silo #3 Unloading to Lime Slaker	ACS3U	VOLUME	632,248	4,974,156	2,007
AC Lime Silo #4 Unloading to Lime Slaker	ACS42U	VOLUME	632,238	4,974,171	2,007
Prill Silos Unloading (2 x 100 ton)	PSU	VOLUME	632,346	4,973,500	2,010
Cement/Shotcrete Silo #1 Unloading	CS1U	VOLUME	632,095	4,974,272	1,992
Cement/Shotcrete Silo #2 Unloading	CS2U	VOLUME	632,095	4,974,272	1,992
Aggregate Bin Loading	CAL	VOLUME	632,095	4,974,272	1,992
Aggregate Bin Unloading	CAU	VOLUME	632,095	4,974,272	1,992
Central Mixer Loading	CM	VOLUME	632,095	4,974,272	1,992

Source Description	Model ID	Source Type	UTM East (m)	UTM North (m)	Elevation (m)
Portable Crushing and Screening Plant 1	PCSP1	VOLUME	632,348	4,973,429	2,009
Portable Crushing and Screening Plant 2	PCSP2	VOLUME	632,348	4,973,369	2,007
Limestone transfer to Primary Crusher Hopper	LS1	VOLUME	632,239	4,974,256	1,996
Primary Crushing and Associated Transfers In and Out	LS2	VOLUME	632,239	4,974,256	1,996
Primary Screening and Associated Transfers In and Out	LS3	VOLUME	632,239	4,974,256	1,996
Secondary Crushing and Associated Transfers In and Out	LS4	VOLUME	632,227	4,974,268	1,996
Secondary Screening and Associated Transfers In and Out	LS5	VOLUME	632,227	4,974,268	1,996
Limestone transfer to Ball Mill Feed Conveyor	LS7	VOLUME	632,181	4,974,307	1,996
Ball Mill Feed transfer to Ball Mill	LS8	VOLUME	632,200	4,974,273	1,996
Limestone transfer to Lime Kiln Feed Conveyor	LS10	VOLUME	632,169	4,974,325	1,996
Fines Screening and Associated Transfers In and Out	LS11	VOLUME	632,151	4,974,314	1,996
Kiln Feed transfer to PFR Shaft Lime Kiln	LS12	VOLUME	632,056	4,974,285	1,984
Pebble Lime Silo discharge to Lime Slaker	LSU	VOLUME	632,069	4,974,206	1,996

Model input release parameters for the process and ancillary sources modeled as POINT sources are provided in Table 29.

Table 29. Process and Ancillary Sources Modeled as POINT Sources

Model ID	Release Height (m)	Exit Temperature (K)(1)	Exit Velocity (m/s)	Exit Diameter (m)
LS1L	13.3	0.0	18.1	0.2
MillS2L	13.3	0.0	18.1	0.2
Sb1	45.7	455.4	6.9	0.3
Sb2	45.7	0.0	6.5	0.3
AC	23.5	364.3	7.4	1.5
ACB	23.5	455.4	10.8	0.6
ACS1L	17.4	0.0	16.1	0.2
ACS2L	17.4	0.0	16.1	0.2
ACS3L	17.4	0.0	16.1	0.2
ACS4L	14.5	0.0	16.1	0.2
CKD	16.8	338.7	5.1	0.1
CKB	14.0	455.4	5.8	0.3
EW	16.8	310.9	24.2	0.3

Model ID	Release Height (m)	Exit Temperature (K)[1]	Exit Velocity (m/s)	Exit Diameter (m)
MR	16.8	338.7	1.5	0.1
MF	16.8	338.7	21.5	0.4
EDG1	2.1	866.5	29.7	0.5
EDG2	2.1	866.5	29.7	0.5
EDG3	2.1	866.5	29.7	0.5
EDFP	2.1	866.5	23.8	0.2
PV	20.7	455.4	1.6	0.1
HS	14.0	455.4	7.5	0.4
H1M	2.1	455.4	6.0	0.4
H2M	2.1	455.4	20.8	0.2
HM	43.0	455.4	28.3	0.1
HAC	20.7	455.4	7.1	0.1
HR	14.0	455.4	7.1	0.1
HA	6.4	455.4	7.1	0.1
HMO	12.5	455.4	1.3	0.2
HTS	12.5	455.4	5.2	0.2
HW	12.5	455.4	5.2	0.2
PSL	7.8	0.0	18.1	0.2
CS1L	13.3	0.0	24.1	0.2
CS2L	13.3	0.0	24.1	0.2
LS6	8.8	0.0	0.0	0.3
LSBM	21.3	0.0	26.7	0.6
LS9	8.8	0.0	0.0	0.3
LK	45.7	449.8	26.4	0.6
LKC	45.7	449.8	26.4	0.6
LCR	15.2	0.0	28.7	0.2
LSL	8.8	0.0	4.1	0.1

[1] 0K represents ambient temperature in model.

The pneumatic transfer silo loadings and bin transfers (LS1L, MillS2L, ACS1L, ACS2L, ACS3L, ACS4L, PSL, CS1L, CS2L, LS6, LSBM, LS9, LSL) were modeled as POINT sources with a 3-foot bin vent above standard silo height as release height. Exit velocity was estimated using the standard stack diameter and flow rates for similar sources (NDEP 2019) or 0.001 meter per second for horizontal exhaust. These sources were modeled with ambient exhaust temperature.

For propane-fired process (Sb1, ACB, CKB, PV, HS) and building heaters (H1M, H2M, HM, HAC, HR, HA, HMO, HTS, HW), exhaust flow rates were calculated using EPA Method 9 with 3% oxygen content and 15% moisture content. Standard stack diameters were selected based on the heater rating. The process heaters were modeled with a 10-foot stack above the building,

whereas the building heaters were modeled with a release height of 1 foot above the respective buildings.

Similar source exhaust temperature, flow, and diameter from (NDEP 2017) were used for refinery sources, including the carbon regeneration kiln (CKD), electrowinning cells (EW), mercury retort (MR), and induction furnace (MF). Each of these sources was modeled with a 10-foot stack above the refinery building.

For emergency generators (EDG1, EDG2, EDG3) and the fire pump (EDFP), the exhaust flow rates were calculated using EPA Method 9 with 9% oxygen content and 8% moisture content. Standard stack diameters were selected based on engine rating. Each engine was modeled with a 7-foot-high stack.

Antimony bagging (Sb2), autoclave (AC), lime kiln (LK) (common stack with kiln burner (LKC)), and lime crushing (LCR) were characterized with similar source parameters from (NDEP 2015b), (APT 2013), and (NDEP 2010). Each of these sources was modeled with a 10-foot stack above its respective building.

The model input release parameters for the process and ancillary sources modeled as VOLUME sources are provided in Table 30.

Table 30. Process and Ancillary Sources Modeled as VOLUME Sources

Model ID	Release Height (m)	Sigma-Y (m)	Sigma-Z (m)
OC1	19.5	3.8	18.1
OC2	19.5	3.8	18.1
OC3	19.5	3.8	18.1
OC4	19.5	3.8	18.1
OC5	19.5	3.8	18.1
OC6	19.5	3.8	18.1
OC7	19.5	3.8	18.1
OC8	10.9	0.2	10.2
OC9	1.2	0.6	1.1
OC10	1.2	0.6	1.1
OC11	20.7	0.3	0.6
OC12	3.0	2.3	2.8
OC13	3.0	2.3	2.8
LS1U	1.4	0.1	0.1
MillS2U	1.4	0.1	0.1
ACS1U	1.4	0.1	0.1

Model ID	Release Height (m)	Sigma-Y (m)	Sigma-Z (m)
ACS2U	1.4	0.1	0.1
ACS3U	1.4	0.1	0.1
ACS42U	1.4	0.1	0.1
PSU	1.4	0.1	0.1
CS1U	1.5	5.1	1.4
CS2U	1.5	5.1	1.4
CAL	1.5	5.1	1.4
CAU	1.5	5.1	1.4
CM	1.5	5.1	1.4
PCSP1	2.1	13.1	2.0
PCSP2	2.1	13.1	2.0
LS1	3.4	1.6	3.2
LS2	3.4	1.6	3.2
LS3	3.4	1.6	3.2
LS4	3.4	1.6	3.2
LS5	3.4	1.6	3.2
LS7	1.1	0.1	0.4
LS8	8.5	0.3	0.6
LS10	1.1	0.1	0.4
LS11	0.8	0.6	0.7
LS12	20.7	0.3	0.6
LSU	1.1	0.1	0.4

For the following VOLUME source characterization discussion, release height was estimated as half of the vertical length (for example, building height), initial vertical dispersion was calculated by dividing the vertical length by the applicable EPA-recommended constant (EPA 2018d) for a single VOLUME source (4.3), and initial lateral dispersion was determined using the lesser lateral dimension (for example, building width) divided by the applicable EPA-recommended constant (EPA 2018d) for the surface source or elevated source with a building (2.15).

The sources associated with the primary crusher building, including loader transfer (OC1), grizzly feeder (OC2), apron feeders (OC3, OC4), ore transfers (OC5, OC6), and primary crusher (OC7), were characterized by the primary crusher building dimensions: 128′ high and 52.9′ wide.

The stockpile height (71.6′) and the conveyor width (3′) were used to determine the VOLUME source parameters for the stockpile feed conveyor (OC8).

Tunnel exit dimensions (8′ high and 8′ wide) were used to estimate the VOLUME release parameters for the stockpile transfer points (OC9, OC10). The SAG mill feed conveyor transfer (OC11) was characterized by a building opening (4′ high and 4′ wide) at the mid-height (70′) of the mill building.

Pebble crusher building dimensions (20′ high and 32.7′ wide) were used to characterize the pebble crusher-associated sources (OC12, OC13).

Silo/bin unloading sources (LS1U, Mill2SU, ACS1U, ACS2U, ACS3U, ACS42U, PSU) were characterized by a typical screw discharge feeder characteristic, i.e., 5′ above the ground with a 1′ diameter.

Aggregate transfer and handling sources (CS1U, CS2U, CAL, CAU, CM) were characterized by the aggregate stockpile dimensions: 20′ high and 72.2′ wide.

Each portable crushing and screening plant was characterized by typical portable crushing and screening plant dimensions: 14′ high and 185′ wide.

Sources associated with limestone crushing (LS1, LS2, LS3, LS4, LS5) were characterized by the associated crusher building dimensions: 22.6′ high and 22.6′ wide.

The crushed limestone/pebble lime transfers (LS7, LS10, LSU) were characterized by a typical screw discharge to a conveyor characteristic, i.e., 5′ above the ground, 3′ drop, and a 1′ diameter.

The limestone ball mill feed discharge (LS8) was characterized by a building opening (4′ high and 4′ wide) at the mid-height (30′) of the ball mill building.

The limestone fines screening (LS11) was characterized by screen dimensions: 5′ drop and 8′ wide.

The limestone kiln feed (LS12) was characterized by a building opening (4′ high and 4′ wide) at the mid-height (70′) of the kiln building.

Model input source characterization for fugitive emissions is described in Section 4.4. Fugitive activity locations and their respective dimensions are provided in Table 15 and associated release parameters are listed in Table 16.

☒ *Thorough justification/documentation of release parameters for all modeled sources is provided in this section.*

☒ *The specific methods used to determine/calculate given release parameters is described in this section.*

☒ *The release orientation of all point source stacks (horizontal, rain-capped, or uninterrupted vertical release) has been verified and is documented in this section.*

5.0 MODELING METHODOLOGY

Refined modeling techniques using the preferred air quality models were used to estimate pollutant concentrations at receptor locations resulting from the SGP air emissions to demonstrate that air emissions resulting from the SGP activities do not cause or significantly contribute to a violation of applicable NAAQS, or AACC as identified in Tables 6 and 7. The methods and techniques, regulatory options, and datasets for these air quality analyses are detailed in the following subsections.

Key modeling parameters used in the SGP impact analyses are presented in Table 31.

Table 31. Key Modeling Parameters

Parameter	Description/Value	Documentation/Additional Description
General facility location	Attainment	See Section 2.4
Analysis type	NAAQS and TAP	SIL analysis was not performed, See Section 4.6.1
Model	AERMOD	Version 19191, see Section 5.1
Meteorological data	AERMET	Version 19191, see Section 5.2
	Surface: Onsite	IDEQ-approved, see Section 5.2
	Upper air: Boise, ID	WBAN 24131, see Section 5.2
	Surface: McCall, ID	See Section 5.2
Terrain	Considered	Processed with AERMAP version 18081, see Section 5.3
Building downwash	Considered	BPIP-PRIME version 04274, see Section 5.5
NO_X chemistry	OLM	See Section 5.9
Receptors	Boundary	25-m spacing, see Section 5.7
	Grid 1	50-m spacing, 0.25 km out
	Grid 2	100-m spacing, 0.25 km to 1.25 km out
	Grid 3	500-m spacing, 1.25 km to 5 km out
	Grid 4	1,000-m spacing, 5 km to 10 km out
	Hot-spot	25-m spacing, 200-m × 200-m around highest model impacts

5.1 Model Selection

The most recent version (19191) of the AERMOD (American Meteorological Society/ Environmental Protection Agency Regulatory Model) modeling system was used for the SGP air quality analyses. AERMOD is an enhanced steady-state, Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources and both simple and

complex terrains. The AERMOD modeling system is listed as the recommended model for short-range analysis (up to 50 km) in 40 CFR 51, Appendix W.

☒ *The current versions of all models and associated programs were used in analyses, or alternate versions were specifically approved by DEQ.*

☒ *Any non-default model options used were approved by DEQ in advance.*

5.2 Meteorological Data

AERMOD requires an input of hourly meteorological data to estimate pollutant concentrations in ambient air resulting from modeled source emissions. For the analyses provided in herein, one year (January 1, 2014 to December 31, 2014) of site-specific hourly surface meteorological data collected at the Stibnite monitoring station were used. This dataset has been approved by IDEQ (IDEQ 2015b) for SGP air quality analyses. The data quality protocols and IDEQ approval references are provided in Section 5.8.

The site-specific surface data were supplemented with the twice-daily upper-air data (all levels) collected at the National Weather Service (NWS) station in Boise, Idaho (WBAN 24131).

These meteorological datasets were processed with the most recent version (19191) of the AERMOD meteorological pre-processor, AERMET, to produce AERMOD-input-ready hourly surface and profile meteorological files. The default option of adjusted surface friction velocity (ADJ_U*) and the Bulk Richardson (BULKRN) method for boundary layer parameter calculations was used for this meteorological data processing.

Additionally, an alternative meteorological dataset was processed without using the BULKRN method. This alternate processing used the onsite and upper air datasets discussed above, supplemented with the cloud-cover data collected at the NWS station in McCall, Idaho (WBAN 94182).

Both processing methods (with and without BULKRN) are considered default for regulatory modeling analyses.

5.2.1 Surface Characteristics for AERMET Processing

AERMET requires the input of three surface boundary layer parameters: midday Bowen ratio (B_o), midday albedo (r), and surface roughness length (z_o). These parameters are dependent on the land use and vegetative cover of the area being evaluated.

The EPA-recommended model, AERSURFACE, was used to estimate these surface parameters for the Stibnite meteorological data processing. AERSURFACE uses 1992 National Land Cover Data to determine these surface characteristics.

The determination of B_o is dependent on ambient moisture conditions (i.e., wet, average, or dry). For this purpose, historic 30-year (1985–2014) precipitation data from the Taylor Ranch station in Idaho (the closest station from which this type of data is available) were used.

The 70th and 30th percentile values estimated from the 30-year precipitation data were used to assign a moisture class to each calendar month per the following scheme: monthly precipitation greater than the 70th percentile was considered "wet"; between the 70th and 30th percentiles was considered "average"; and less than the 30th percentile was considered "dry." The monthly season and moisture classifications and estimated r and B_o for 2014 Stibnite meteorological data processing are presented in Table 32.

Table 32. 2014 Monthly Season and Moisture Classification, and Calculated r and B_o

Month	Season	r	30-Year Precipitation Percentile (in)		2014 Precipitation (in)	Moisture Classification	B_o
			30th	70th			
January	Winter	0.38	0.64	1.29	0.74	Average	0.50
February	Winter	0.38	0.40	0.81	0.99	Wet	0.50
March	Spring	0.13	0.83	1.23	2.33	Wet	0.34
April	Spring	0.13	1.11	1.57	0.99	Dry	1.57
May	Spring	0.13	1.43	2.23	0.74	Dry	1.57
June	Summer	0.13	1.17	1.80	1.32	Average	0.37
July	Summer	0.13	0.46	1.45	0.40	Dry	0.76
August	Summer	0.13	0.42	1.11	2.03	Wet	0.25
September	Fall	0.13	0.27	1.23	0.43	Average	0.87
October	Fall	0.13	0.59	1.69	1.75	Wet	0.35
November	Fall	0.13	0.72	1.44	3.73	Wet	0.35
December	Winter	0.38	0.64	1.16	0.83	Average	0.50

The seasonal z_o values in m for each 30-degree sector of the 1-km radius for the Stibnite monitoring station are provided in Table 33. (i.e., Sector 1 is 0° to 30° clockwise from the north, Sector 2 is 30° to 60° clockwise from the north, etc.).

Table 33. Calculated Seasonal z_o Values (m)

Sector	Winter	Spring	Summer	Fall
1	0.410	0.564	0.610	0.607
2	0.212	0.347	0.392	0.387
3	0.517	0.640	0.671	0.669
4	0.769	0.865	0.894	0.894
5	0.989	1.044	1.055	1.055
6	0.741	0.874	0.918	0.915
7	0.400	0.563	0.617	0.614
8	0.414	0.522	0.552	0.550
9	0.049	0.171	0.244	0.243
10	0.060	0.197	0.274	0.274
11	0.183	0.372	0.449	0.449
12	0.576	0.710	0.743	0.742

Winter = December, January, February
Spring = March, April, May
Summer = June, July, August
Fall = September, October, November

Wind frequency distribution for the 2014 Stibnite meteorological dataset is presented in Figure 7, and a map showing the location of the meteorological monitoring stations used for this meteorological data processing is presented in Figure 8.

☒ *Meteorological data files are provided with the application.*

☒ *If meteorological data used for modeling were not provided by DEQ, then a detailed discussion of the data is provided along with documentation of the processing steps.*

Figure 7. Wind Frequency Distribution for 2014 SGP Meteorological Data

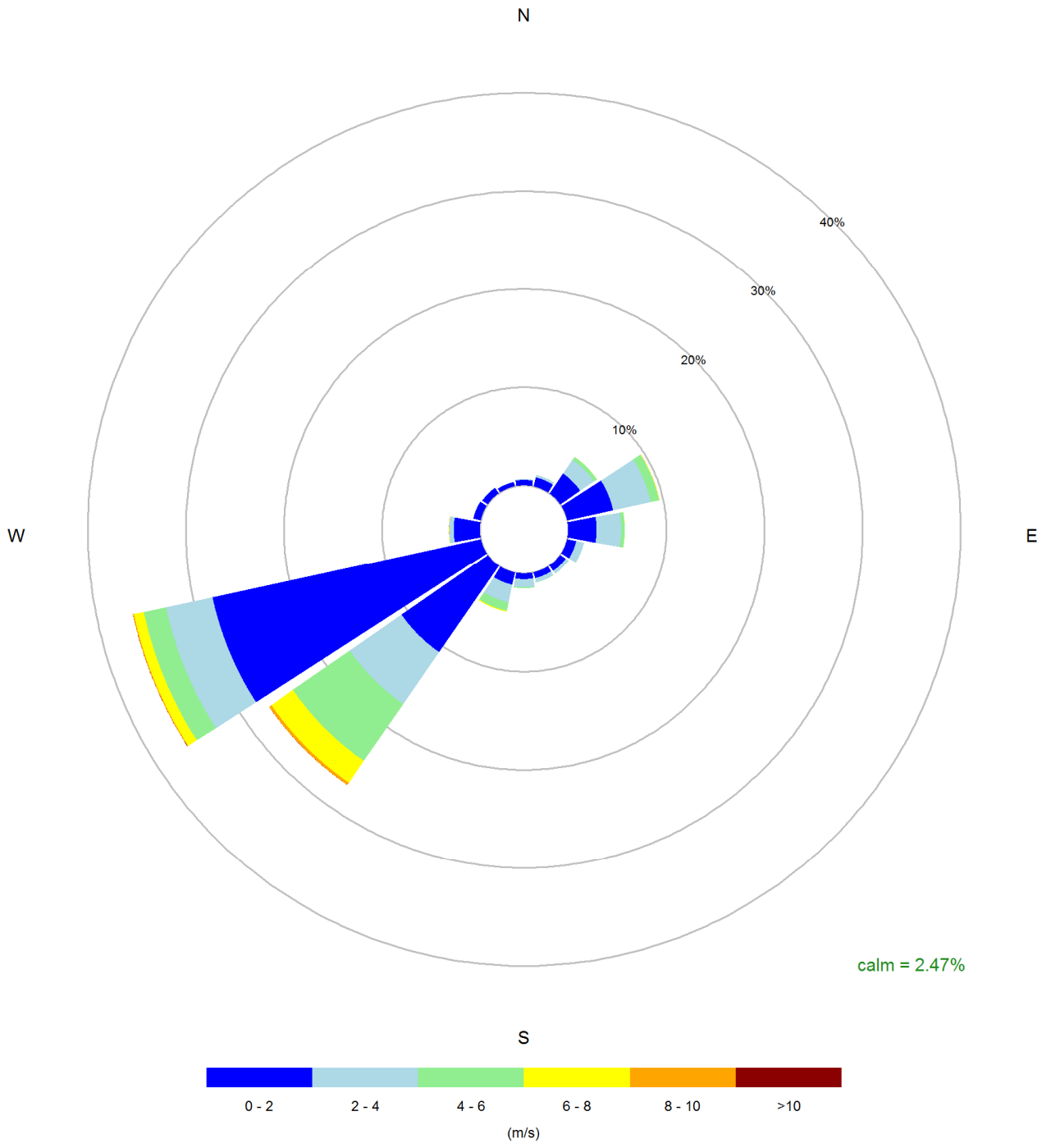
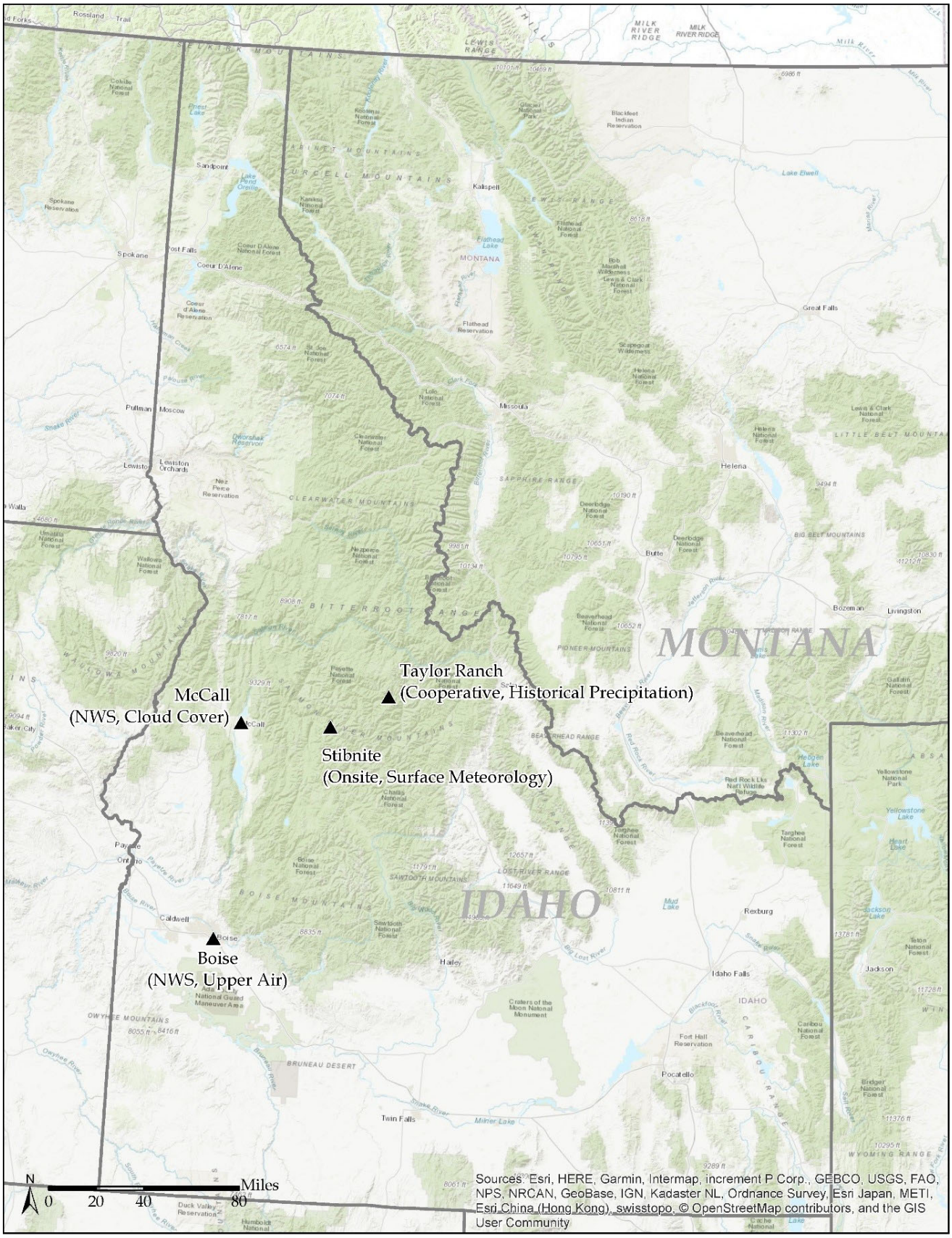


Figure 8. Meteorological Station Locations for SGP Modeling



5.3 Effects of Terrain

The most recent version of the AERMOD terrain preprocessor, AERMAP (Version 18081), was used to develop receptor elevations and hill heights. U.S. Geological Survey (USGS) fine-resolution, one-third-arc-second or 10-m resolution National Elevation Dataset files were used to process receptors for the SGP analyses.

☒ *The datum of terrain data, building corner locations, emissions sources, and the ambient air boundary are specified and are consistent such that the modeled plot plan accurately represents the facility and surroundings.*

5.4 Facility Layout

A facility-wide plot plan showing an overall layout of pits, DRSF, process area and ambient air boundary is provided in Figure 4. A detailed layout of the process area showing buildings and sources is supplied in Figure 5, and the haul road network is depicted in Figure 6.

☒ *The facility layout plot plan is provided in this section that clearly and accurately depicts buildings, emissions points, and the ambient air boundary.*

☒ *This section of the Modeling Report has thoroughly described how locations of emissions sources, building corners, and the ambient air boundary were determined, specifying the datum used.*

5.5 Effects of Building Downwash

The effects of building-induced downwash were incorporated into the modeling analyses. The building downwash parameters were calculated using the most recent version of the Building Profile Input Program (BPIP) with the Plume Rise Model Enhancement (PRIME) algorithm (BPIP-PRIME Version 04274).

Building locations, orientation and dimensions were obtained from project drawings (Midas Gold 2017d).

5.6 Ambient Air Boundary

EPA defines ambient air as "*that portion of the atmosphere, external to buildings, to which the general public has access*" (40 CFR 50.1(e)). EPA also recognizes that some areas external to buildings are not covered by this definition. The EPA's longstanding policy on "ambient air" was that the atmosphere over land that is owned or controlled by the source and where public access is precluded by a fence or other physical barriers can be excluded from the definition of ambient air. Recently EPA proposed a restatement of its longstanding policy for public comment, "Draft Revised Policy on Exclusions from Ambient Air" (EPA 2018b). Without changing the underlying definition, EPA's updated policy allows consideration of additional methods to restrict public access. It replaces the phrase *"a fence or other physical barriers"* with *"measures, which may include physical barriers, that are effective in deterring or precluding access to the land by the*

general public." To keep up with practical considerations, and technological advancements in surveillance and security, the revised policy states:

"*… the EPA believes there are various measures other than fencing or other physical barriers that a facility can employ to serve as an effective deterrent to public access. These measures may include traditional fencing, but may also include video surveillance and monitoring, clear signage, routine security patrols, drones, and other potential future technologies.*"

This revised policy provides guidance to reviewing agencies to make ambient air determinations:

"*Air agencies should evaluate the effectiveness of a "measure" in precluding public access based on the relevant, specific circumstances. This evaluation should address relevant factors, such as the nature of the measure used (e.g., physical or non-physical), facility location (e.g., rural or urban), type and size of facility and property to be excluded, surrounding area (including the proximity, nature, and size of the population in the area), and other factors affecting the extent to which persons would be likely or able to trespass upon or otherwise have access to the facility's land. Air agencies should consider any information provided by the regulated entity, or otherwise available to the air agencies, regarding the effectiveness of the measures to prevent public access. For instance, the use of clearly visible, well-spaced "No Trespassing" signs, either with or without fencing, may be effective in certain areas. Another example of an effective measure may involve atypical public access such as swamps and large tracts of undeveloped private land.*"

"*Air agencies are expected to apply a rule of reason in assessing the effectiveness of proposed measures.*"

"*… measures should provide reasonable assurance that the general public will not have access.*"

"*… determinations concerning the adequacy of such measures can only be made by air agencies on a case-by-case basis after consideration of the relevant administrative record in each case.*"

The second aspect of the access evaluation did not change in EPA's restatement; that is whether the source has the legal authority to preclude access by the public to the area of land it owns. In the conclusion section, the revised policy states:

"*This change replaces the specific concept of a fence or other physical barriers with the more general concept of measures, which may include physical barriers, that are effective in deterring or precluding access by the general public. Accordingly, the EPA's revised ambient air policy, consistent with its discretion available under the regulatory definition of ambient air, is that it is appropriate to exclude the atmosphere over land owned or controlled by the stationary source, where the owner or operator of the source employs measures, which may include physical barriers, that are effective in deterring or precluding access to the land by the general public.*"

Midas Gold will legally control the SGP, an active industrial site where mining activities will occur, such as heavy equipment operation. Most areas of the mine will require strict safety protocols and controlled access. Midas Gold has established an operations boundary to identify the area where public access will be excluded. Public access inside the operations boundary will be restricted for the life of the mine by physical barriers at points of potential access, including the current Stibnite Road point of entry and proposed site access via the Burntlog Route, as well as natural features of the landscape that prevent access. Consistent with the guidance provided in the EPA's draft revised policy on ambient air (EPA 2018b), public access control will include the following measures:

- Primary Access Points: The Stibnite Road (north) and Burntlog Route (south) access points will include locked gates. The southern access point also will include a guard shack that onsite personnel will monitor continuously. Security staff at the southern access point will monitor the gate at the northern access point using video camera surveillance. Each gate also will include appropriate adjacent barriers (i.e., fencing, bollards, boulders, or other barriers) to prevent any vehicle from circumventing the gate and gaining site access. These primary access points are also controlled by adjacent natural features, such as streams and creeks, steep topography, and areas of thick vegetation and undergrowth that serve as natural barriers or impediments to access.

- Secondary Access Points: Other potential access points, such as secondary roadways and trails, will include posted signs warning the public against entry into the site. At these locations, boulders will be placed across the trail and at an appropriate width adjacent to the trail to prevent any vehicle from circumventing the barrier. These secondary access points also incorporate adjacent natural features, such as streams and creeks, steep topography, and areas of thick vegetation and undergrowth that serve as natural barriers or impediments to access. Some mine features, such as the TSF and process plant areas, will include perimeter fencing.

- Surveillance: Midas Gold security personnel will routinely patrol mine facilities and roadways for unauthorized individuals. In addition, all onsite personnel will be trained on the necessity of restricting public access to areas within the operations boundary. Any suspected trespassing by unauthorized individuals will be reported immediately to security, and trespassers will be escorted off the site.

In response to comments from local community citizens, Midas Gold will manage an access route to provide the general public with limited access through the SGP site between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek (shown in Figure 4). This route will be managed in accordance with the Stibnite Road Access Management Plan provided in Attachment 2 and summarized as follows:

The proposed Stibnite Road access route through the SGP site is meant to provide controlled through-site access that is safe, provides travel-time comparable to current conditions and is consistent with the United States Forest Service travel management plan. The Stibnite Road access route extends from the north entry point southward to the Administration, Warehouse and Storage Area. Continuing southward, the Stibnite Road access route incorporates the Burntlog access road segment that occurs within the operations area and extends to the south entry point as shown on Figure 4. Midas Gold has the legal authority to control access to the Stibnite Road access route and would provide seasonal (non-winter conditions) access only. At the discretion of Midas Gold, additional access controls may occur during various phases of construction, during mine operations that present potential safely hazards such as blasting, due to inclement weather, or under any other circumstances that may present a threat to the protection of public or employee health and safety. Midas Gold has the legal and practical ability to enforce its control over roadway access and to monitor traffic passing through the SGP site. Signage will be placed at the North Security Gate (near the bridge over Sugar Creek) and the South Security Gate (near the Stibnite Lodge) to provide information to travelers, and guard shacks will be located at each gate to monitor all vehicle ingress/egress. Persons wishing to traverse the SGP site on the Stibnite Road access route will be required to check in at the security gate to receive a safety briefing and to alert mine staff of their presence. Travelers will be required to check out upon exiting the site to ensure passage through the site in a safe and timely manner. Travelers will not be allowed to stop or loiter while traveling though the operations area. Along its full length, the Stibnite Road access route would have appropriate signage to direct travelers and would be separated from mine haul roads and areas of mine operations by fencing, berms, or gates to prevent travelers from straying from the route. When possible and to the degree practicable, anticipated public access restrictions will be communicated to the public in a timely manner so that they may plan appropriately. Receptors on the Stibnite Road access route were not included in the SGP air quality analyses as this road is not considered ambient air.

The worker housing facility will be located within the project operations boundary, near the south access security gate. This housing facility will be used strictly for accommodating employees, contractors, and official visitors, and it will not be accessible to the general public. Therefore, the atmosphere over the land occupied by the worker housing facility is not considered ambient air, and receptors were not placed at this location for the air quality analyses.

The operations boundary, shown in Figures 4 and 9, was used to define the ambient air boundary for the air dispersion modeling purposes.

☒ *If any of the following apply, the effect on areas excluded from ambient air is thoroughly described in this section: a river/stream bisecting the facility; the facility is on leased property or is leasing property to*

another entity; the facility is not completely fenced; there are right-of-way areas on the facility; the nature of business is such that the general public have access to part or all of the facility.

☒ *This section thoroughly describes how the facility can legally preclude public access (and practically preclude access) to areas excluded from ambient air in the modeling analyses.*

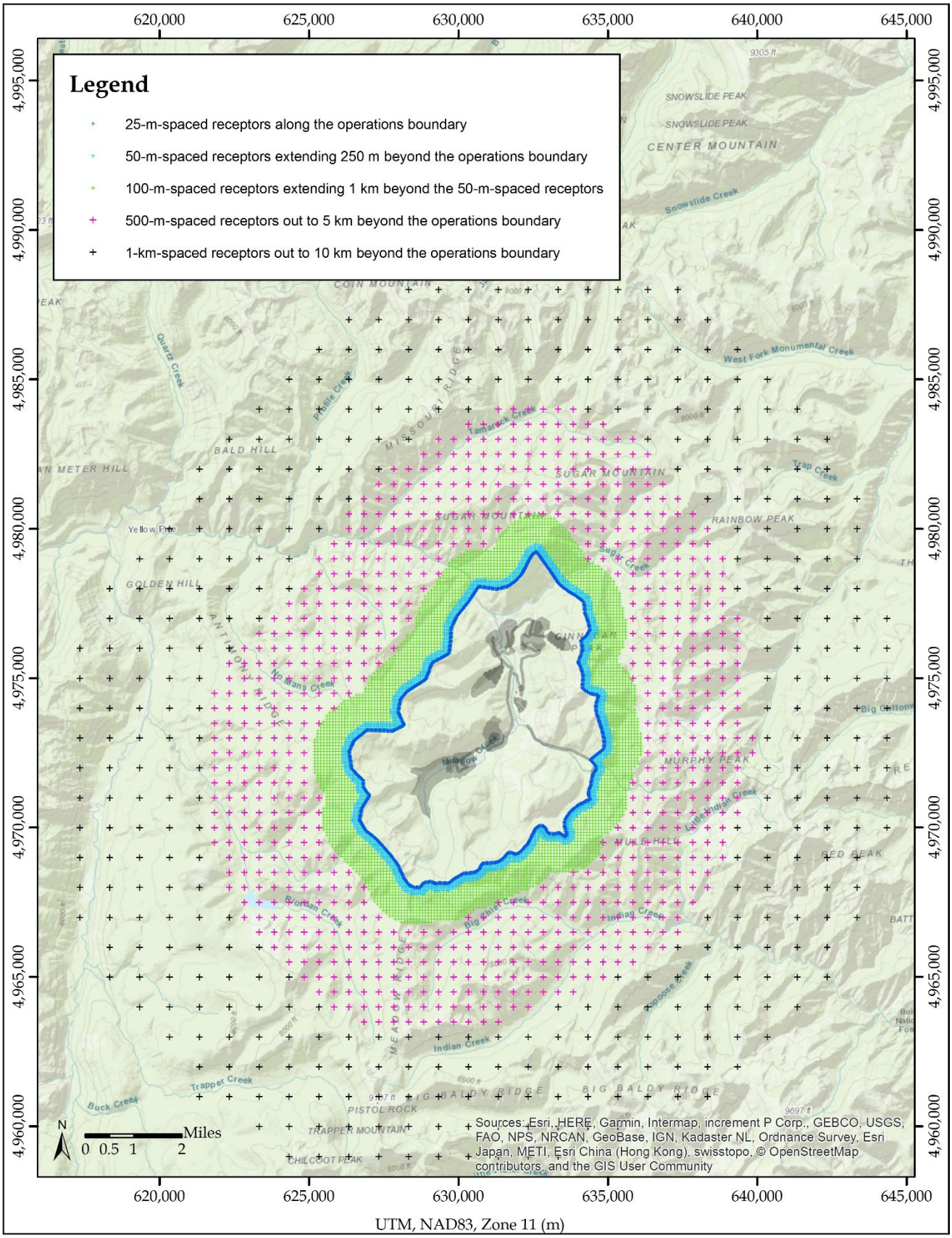
5.7 Receptor Network

The SGP air quality analyses was performed using the following receptor spacing and extents:

- 25-meter (m)-spaced receptors placed along the ambient air boundary;
- 50-m-spaced receptors extending 250 m beyond the ambient air boundary;
- 100-m-spaced receptors extending 1 km beyond the 50-m-spaced receptors;
- 500-m-spaced receptors extending 5 km beyond the ambient air boundary; and
- 1-km-spaced receptors extending 10 km beyond the ambient air boundary.

In addition, each highest modeled impact was evaluated further by performing a hot-spot analysis using a finer 25m-spacing receptor grid. The modeling receptor grid is shown in Figure 9.

Figure 9. SGP Operations Boundary and Modeling Receptor Grid



☒ *This section of the Modeling Report provides justification that receptor spacing used in the air impact analyses was adequate to reasonably resolve the maximum modeled concentrations to the point that NAAQS or TAP compliance is assured.*

5.8 Background Concentrations

This section describes the background concentrations representative of the SGP area.

5.8.1 Onsite Particulate Monitoring

To establish background ambient air conditions for the SGP area, Midas Gold developed an onsite monitoring program to collect site-specific meteorological parameters and determine ambient particulate matter ($PM_{2.5}$ and PM_{10}) concentrations at its Stibnite monitoring station (shown in Figure 8). Midas Gold submitted the "Monitoring Protocol and Quality Assurance Project Plan" (JBR 2013) for this monitoring station to the IDEQ, and it was approved formally in December 2013 (IDEQ 2013a).

In September 2015, Midas Gold submitted the data collected at the Stibnite monitoring station for the period of November 2013 through June 2015 to IDEQ. After reviewing the data and associated quality control procedures, IDEQ concluded that the $PM_{2.5}$ and PM_{10} data collected at the Stibnite monitoring station satisfied the applicable regulatory requirements and approved the data to be used for background concentrations in the SGP air quality analyses (IDEQ 2015b). In its conclusions, IDEQ recommended that the $PM_{2.5}$ and PM_{10} background concentrations should be based on calendar year 2014 instead of the complete dataset (November 2013 through June 2015).

IDEQ-approved $PM_{2.5}$ and PM_{10} background concentrations, in units of micrograms per cubic meter (µg/m^3), are provided in Table 34.

Table 34. IDEQ-Approved $PM_{2.5}$ and PM_{10} Background Concentrations for SGP

Pollutant	Averaging Time	Background Concentration (µg/m^3)	Design Value Rank
$PM_{2.5}$	1 year	3.5	Weighted average of quarterly means
	24 hours	15	98th percentile/8th high
PM_{10}	24 hours	37	Highest 2nd high

5.8.2 Gaseous Pollutant Background Concentrations

With a few exceptions of very large facilities or facilities located in nonattainment areas, regulatory agencies do not require the collection of gaseous criteria pollutants, including CO, NO_X (and/or nitrogen dioxide [NO_2]), O_3, and SO_2. For these gaseous pollutants, data collected at government-regulated monitoring stations located in settings similar to the project area in

terms of terrain, land use, and proximity of emission sources are typically used to establish background concentrations.

To determine representative background concentrations of CO, NO_X, O_3, and SO_2 for the SGP site, which is located in a remote rural area, the IDEQ-maintained ambient monitoring network was reviewed. This review revealed that IDEQ only conducts limited trace monitoring for CO, NO_X, O_3, and SO_2 in the Boise metropolitan area along the Interstate 84 corridor. Thus, the data collected at these monitors are exposed to high emissions from industrial, urban, and transportation sources (IDEQ 2015a) (IDEQ 2018). For this reason, the gaseous pollutant concentrations recorded at these urban monitoring locations were not considered to be representative of a rural area, like the SGP site.

The EPA-maintained monitoring stations (EPA 2018a) in Idaho and surrounding states also were reviewed to determine representative gaseous pollutant background concentrations for the SGP site. This review also did not identify any representative monitoring station to establish background gaseous pollutant concentrations for the SGP site.

The IDEQ-recommended (IDEQ 2019) CO, NO_X, O_3, and SO_2 background concentrations for the SGP air quality analyses in units of parts per billion (ppb) and $\mu g/m^3$, are provided in Table 35.

Table 35. IDEQ-Recommended Gaseous Pollutant Background Concentrations for SGP

Pollutant	Averaging Time	Background Concentration (ppb)	Background Concentration ($\mu g/m^3$)	Reference
CO	8 hours	970	1,110	NW AIRQUEST, 2014-2017 design value
	1 hour	1,520	1,740	
NO_2	1 year	0.5	0.9	
	1 hour	2.3	4.3	
O_3 (for NO_2 modeling)	8 hours	55	107.9	
SO_2	3 hours	6.4	16.8	
	1 hour	4.7	12.3	

The IDEQ-provided gaseous pollutant concentrations shown in Table 35 were determined using the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) online tool provided through Washington State University. The NW AIRQUEST tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with model results adjusted according to available monitoring data.

5.8.3 Medium Traffic Pollutant Background Concentrations

For additional information, background concentrations were obtained from NW AIRQUEST for the road section between mile markers 143 and 144 on Highway 55 passing through the town of McCall. This site (latitude 44.906° N, longitude 116.098° W) is approximately 38 miles west of the SGP. The annual average daily traffic count for this road section is over 10,000 vehicles per day. Table 36 provides the background concentrations for this medium traffic site. Although these concentrations are not representative of the rural SGP area, they do provide additional information regarding the relative contribution of traffic emissions.

Table 36. Medium Traffic Background Concentrations

Pollutant	Averaging Time	Background Concentration (ppb)	Background Concentration (μg/m³)	Reference
CO	8 hours	1,000	1,145	NW AIRQUEST, 2014-2017 design value, near McCall, ID (44.91°N, 116.10°W)
	1 hour	1,570	1,797	
NO_2	1 year	1.4	2.6	
	1 hour	7.6	14.3	
$PM_{2.5}$	1 year	--	5.1	
	24 hours	--	17.5	
PM_{10}	24 hours	--	60.1	
SO_2	3 hours	6.4	16.8	
	1 hour	4.7	12.3	

☒ *Background concentrations have been thoroughly documented and justified for all criteria pollutants where a cumulative NAAQS impact analysis was performed.*

5.9 NOx Chemistry

The NO_X emissions from the combustion sources principally are composed of NO (nitric oxide) and NO_2. Once in the atmosphere, NO can convert to NO_2 through chemical reactions with ambient O_3. To address this atmospheric conversion process, the Guideline on Air Quality Models (40 CFR 51, Appendix W) recommends the following three-tiered screening approach for evaluating NO_2 impacts:

i. A first-tier (most conservative) "full" conversion approach;

ii. A second-tier approach that assumes ambient equilibrium between NO and NO_2; and

iii. A third-tier approach consisting of several detailed screening techniques that account for ambient O_3 and the relative amount of NO and NO_2 emitted from a source.

The default third-tier OLM method with the combined plume option (keywords OLMGROUP ALL) was used in modeling the NO_2 1-hour and annual impacts for these analyses.

The use of OLM requires the following additional input parameters:

- Ambient Equilibrium NO_2/NO_X Ratio: The AERMOD default NO_2/NO_X ambient equilibrium ratio of 0.90 was used for these analyses.
- In-Stack NO_2/NO_X Ratio: The NO_2/NO_X ratios used for the SGP analyses are listed in Table 19 in Section 4.6.3.
- Background O_3 Concentrations: The use of the OLM option in AERMOD requires the input of hourly O_3 concentrations. The O_3 concentration values may be entered as a single value, as hourly values corresponding with meteorological data, or as temporally varying profiles. For the SGP NO2 analyses, a single O_3 concentration of 55 ppb provided by IDEQ (IDEQ 2019) was used.

☒ *If OLM or PVMRM was used to address NOx chemistry, reasons for selecting one algorithm over the other are provided in this section.*

5.9.1 Treatment of Intermittent Sources for NO_2 1-Hour Analyses

In its most recent guidance on NO_2 1-hour modeling (EPA 2011), the EPA has recognized that intermittent sources that do not operate continuously or frequently enough, specifically emergency generators, are less likely to contribute significantly to the annual distribution of daily maximum 1-hour values. The EPA also recommends "*that compliance demonstrations for the 1-hour NO_2 NAAQS be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations*" (EPA 2011). Also, "*EPA believes the most appropriate data to use for compliance demonstration for the 1-hour NO_2 NAAQS are those based on emission scenarios that are continuous enough or frequent enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations*" (EPA 2011).

The emergency equipment for the SGP includes backup power generators and a fire pump. This equipment is essential to ensure safety and uninterrupted essential operations in case of unforeseen power failures and/or other emergency situations. This equipment is proposed to operate for 100 hours per year for purposes of determining potential emissions, but it may operate for far fewer hours and on a random schedule. Thus, operation of emergency equipment will not be frequent enough to contribute significantly to the annual distribution of

daily maximum 1-hour concentrations, and inclusion of the equipment's maximum hourly emissions does not represent a logical emission scenario.

After reviewing the EPA guidance, and public and industry comments, as well as conducting its internal review and test model runs, the IDEQ has determined that NO_2 emissions from emergency equipment may be excluded from the NAAQS analyses (IDEQ 2013b).

Based on guidance provided by IDEQ on the intermittent source modeling for NO_2 1-hour NAAQS emissions from emergency equipment were not included for NO_2 1-hour NAAQS analyses. However, for the other pollutants, the emergency equipment short-term (up to 24 hours) emissions were based on one hour of operation and the annual emissions were based on 100 hours of operation.

5.10 Particulate Deposition

For $PM_{2.5}$ and PM_{10} analyses default particulate modeling methods, including deposition (Method 1, to account for depletion due to particulate settling), were used. To account for particulate settling, AERMOD requires the following source-specific variables:

1. Mass-mean aerodynamic particle diameter (PARTDIAM) for each particle size bin
2. Mass fraction (MASSFRAX) for each particle size bin
3. Particle density (PARTDENS) for each particle size bin

A list of references that were used to develop the broad source category particle size bins and associated mass fractions is provided in Table 37. This table also provides material type and associated density in grams per cubic centimeter (g/cm^3) for each source category.

Midas Gold (Midas Gold 2017b) provided the ore and DR material densities. The diesel and propane combustion particulate densities were adopted from technical literature (UMN 2002) and (Khalizov et al. 2012), respectively. Densities for the remaining materials listed in Table 37 were obtained from the Engineering Toolbox.[1] An average density was used when a material-specific density range was available.

Table 37. References Used to Develop Deposition Parameters

Source Category/Type	Mass Fraction Reference	Material Type	Density (g/cm^3)
Vehicle Travel Road Dust	AP-42, Sec. 13.2.2, (11/06), Eqs. 1a and 2, Tab. 13.2.2-2	YP, HF, WE DR average	2.46
Ore Handling	AP-42, Pg. 13.2.4-4, (11/06)	Pit-specific ore, see Table 39	
DR Handling	AP-42, Pg. 13.2.4-4, (11/06)	Pit-specific DR, see Table 39	

[1] https://www.engineeringtoolbox.com/density-materials-d_1652.html

Source Category/Type	Mass Fraction Reference	Material Type	Density (g/cm^3)
Limestone Handling	AP-42, Pg. 13.2.4-4, (11/06)	Limestone dust	1.09
Baghouses	AP-42, App. B-1, Pg. B.1-77, Sec. 11.21, (01/95), (phosphate rock processing: roller mill and bowl mill grinding)	Pit-specific ore, see Table 39	
Diesel Engines	AP-42, App. B-2, Tab. B.2-2, Pg. B.2-11, (01/95), (Category 1, stationary internal combustion engines, gasoline and diesel fuel)	Diesel combustion particulate	1.00
Heaters and Boilers	AP-42, App. B-2, Tab. B.2.2, Pg. B.2-12, (01/95), (Category 2, combustion, mixed fuels, boilers)	Propane combustion particulate	1.24
Quick Lime Handling	AP-42, Table 11.12-2, (6/06), (pneumatic loading, controlled)	Quick lime	0.44
Pebble Lime Handling	AP-42, Table 11.12-2, (6/06), (pneumatic loading, controlled)	Pebble lime	0.96
Cement Handling	AP-42, Table 11.12-2, (6/06), (pneumatic loading, controlled)	Portland cement	1.44
Aggregate Handling	AP-42, Table 11.12-2, (06/06), (aggregate transfer, uncontrolled)	Gravel	1.28
Prill Handling	AP-42, Table 8.3-2, (07/93), (bulk loading, uncontrolled)	Ammonium nitrate prill	0.84
Furnace/Refinery	AP-42, App. B-2, Tab. B.2.2, Pg. B.2-18, (01/95), (Category 8, melting, smelting, refining, metals, except aluminum)	Diesel combustion particulate	1.00
Portable Crushing and Screening Plant	AP-42, Table 11.19.2-2 (08/04): Tert. Crushing - ctrl. × 2 + Screening - ctrl. × 2 + Conv. Transfer - ctrl. × 5	YP, HF, WE DR average	2.46
Lime Kiln	AP-42, Sec. 11.17, Tab. 11.17-7, (02/98) (rotary kiln with fabric filter)	Limestone dust	1.09
Limestone Ball Mill	AP-42, Sec. 11.17, Tab. 11.17-7, (02/98), (rotary kiln with fabric filter)	Limestone dust	1.09
Blasting	AP-42, Sec. 11.9, Tab. 11.9-1, (07/98), (blasting, overburden)	Pit-specific ore or DR, see Table 39	
Drilling	AP-42, Tab. 11.9-1, (07/98), (scaling factors for overburden blasting)	Pit-specific ore or DR, see Table 39	

For sources that were aggregated and modeled as activity locations as discussed in Section 4.4.2, deposition parameters were selected for the dominant source within the activity location. For open-pits (YPP, HFP, WEP), approximately 90% of emissions were associated with drilling; therefore, drilling deposition parameters were assigned to these sources. Similarly, emissions from dozing accounted for over 70% of emissions in the DRSF (FDRSF, HFDRSF, WEDRSF) and BT; therefore, these sources were assigned deposition parameters based on a dozing particulate profile.

The deposition parameters including mass fractions, mass mean diameters, and densities for broader source categories/groups are provided in Table 38.

Table 38. Deposition Parameters by Source Category

Source Category	Parameter	PM_{10}				$PM_{2.5}$	
		Bin 1	Bin 2	Bin 3	Bin 4	Bin 1	Bin 2
Haul Roads	Bin Upper Diameter (µm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.10	0.90	--	--	1.00	--
	Mass Mean Diameter (µm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (YP, HF, WE DR average)	2.46	2.46	--	--	2.46	--
Material Handling (Ore, DR, Limestone)	Bin Upper Diameter (µm)	2.50	5.00	10.00	--	2.50	--
	Mass Fraction	0.15	0.42	0.43	--	1.00	--
	Mass Mean Diameter (µm)	2.50	5.00	10.00	--	2.50	--
	Density (g/cm^3) (Ore)	Pit-specific, see Table 39					
	Density (g/cm^3) (DR)	Pit-specific, see Table 39					
	Density (g/cm^3) (Limestone)	1.09	1.09	1.09	--	1.09	--
Baghouses	Bin Upper Diameter (µm)	2.50	6.00	10.00	--	2.50	--
	Mass Fraction	0.28	0.50	0.22	--	1.00	--
	Mass Mean Diameter (µm)	2.50	6.00	10.00	--	2.50	--
	Density (g/cm^3) (Ore)	Pit-specific, see Table 39					
Diesel Engines	Bin Upper Diameter (µm)	1.00	2.50	6.00	10.00	1.00	2.50
	Mass Fraction	0.85	0.08	0.03	0.03	0.91	0.09
	Mass Mean Diameter (µm)	1.00	2.50	6.00	10.00	1.00	2.50
	Density (g/cm^3) (Diesel Combustion)	1.00	1.00	1.00	1.00	1.00	1.00
Heaters and Boilers	Bin Upper Diameter (µm)	1.00	2.50	6.00	10.00	1.00	2.50
	Mass Fraction	0.29	0.28	0.32	0.11	0.51	0.49
	Mass Mean Diameter (µm)	1.00	2.50	6.00	10.00	1.00	2.50
	Density (g/cm^3) (Propane Combustion)	1.24	1.24	1.24	1.24	1.24	1.24
Lime Loading and Unloading (Quick, Pebble)	Bin Upper Diameter (µm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.15	0.85	--	--	1.00	--
	Mass Mean Diameter	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (Quick)	0.44	0.44	--	--	0.44	--
	Density (g/cm^3) (Pebble)	0.96	0.96	--	--	0.96	--
Lime Unloading (Quick, Pebble)	Bin Upper Diameter (µm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.15	0.85	--	--	1.00	--
	Mass Mean Diameter (µm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (Quick)	0.44	0.44	--	--	0.44	--
	Density (g/cm^3) (Pebble)	0.96	0.96	--	--	0.96	--
Cement and Aggregate Loading and Unloading	Bin Upper Diameter (µm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.15	0.85	--	--	1.00	--
	Mass Mean Diameter (µm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (Cement)	1.44	1.44	--	--	1.44	--
	Density (g/cm^3) (Aggregate)	1.28	1.28	--	--	1.28	--

Source Category	Parameter	PM_{10}				$PM_{2.5}$	
		Bin 1	Bin 2	Bin 3	Bin 4	Bin 1	Bin 2
Prill Loading and Unloading	Bin Upper Diameter (μm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.15	0.85	--	--	1.00	--
	Mass Mean Diameter (μm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (Prill)	0.84	0.84	--	--	0.84	--
Refining Processes	Bin Upper Diameter (μm)	1.00	2.50	6.00	10.00	1.00	2.50
	Mass Fraction	0.78	0.11	0.08	0.03	0.88	0.12
	Mass Mean Diameter (μm)	1.00	2.50	6.00	10.00	1.00	2.50
	Density (g/cm^3) (Diesel Combustion)	1.00	1.00	1.00	1.00	1.00	1.00
Portable Crushing and Screening Plant	Bin Upper Diameter (μm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.13	0.87	--	--	1.00	--
	Mass Mean Diameter (μm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (YP, HF, WE DR average)	2.46	2.46	--	--	2.46	--
Lime Kiln and Ball Mill	Bin Upper Diameter (μm)	2.50	10.00	--	--	2.50	--
	Mass Fraction (Kiln)	0.49	0.51	--	--	1.00	--
	Mass Fraction (Ball Mill)	0.36	0.64	--	--	1.00	--
	Mass Mean Diameter (μm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3)	1.09	1.09	--	--	1.09	--
Blasting and Drilling	Bin Upper Diameter (μm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.06	0.94	--	--	1.00	--
	Mass Mean Diameter (μm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (Ore or DR)	Pit-specific, see Table 39					
Dozing	Bin Upper Diameter (μm)	2.50	10.00	--	--	2.50	--
	Mass Fraction	0.55	0.45	--	--	1.00	--
	Mass Mean Diameter (μm)	2.50	10.00	--	--	2.50	--
	Density (g/cm^3) (DR)	Pit-specific, see Table 39					

In order to account for variability in ore and DR densities for different pits, pit-specific densities were used for the ore and DR for each modeling scenario, with the following exception – for haul roads, access roads, and portable crushers, the average DR density from YP, HF, and WE pits was used. Note, the BT density was excluded from those sources because the BT material will not be used for roads or construction. The pit-specific ore and DR densities are provided in Table 39.

Table 39. Pit-Specific Ore and DR Densities for Deposition

Pit	Material	Density (g/cm^3)
YP	Ore	2.59
BT	Ore	2.00

Pit	Material	Density (g/cm^3)
HF	Ore	2.59
WE	Ore	2.68
YP	DR	2.48
BT	DR	2.00
HF	DR	2.34
WE	DR	2.57
Average (YP, HF, WE)	DR	2.46

5.11 Mobile Equipment Tailpipe Emissions

In its comments letter (IDEQ 2019) on the Midas modeling protocol, IDEQ recognizes that tailpipe emissions from mobile sources are not subject to permitting requirements and are therefore not considered for impact analyses. Traditionally, mobile source emissions are considered a part of background concentrations. Because the SGP facility is not constructed yet, IDEQ believes that the resulting tailpipe emissions are not a part of current background concentrations. Therefore, IDEQ suggested that at the least, the impacts from the SGP-related tailpipe emissions must be addressed qualitatively by demonstrating that the conservative aspects of modeling analyses ensure NAAQS compliance even if tailpipe emissions were not specifically included in the model.

Midas believes that even though SGP-related mobile equipment tailpipe emissions were not included in the modeling analyses, the results provided in this report are conservatively high, ensuring NAAQS compliance, for the following reasons:

- Inherent conservatism built into the regulatory dispersion modeling system.
- The estimated total ambient concentrations (maximum modeled design concentration plus the applicable design background concentration) from the SGP emissions were compared with applicable ambient standards for compliance demonstration. The estimated total ambient concentrations are expected to be conservatively high because the applicable design background concentrations were added to the maximum design model outputs, even though the two are not expected to be temporally or spatially paired.
- The modeled emissions were based on maximum short-term activity rates occurring continuously, including blasting emissions based on one blast occurring every hour for the applicable 1-hour standards, and two blasts occurring every day for the applicable 24-hour standards. The actual blasting is not expected to exceed one blast per day. Inflated daily production and mining activity rates were also used to estimate the conservatively high emissions from processing and mining sources.

- Applicable mining activity fugitive emissions were concentrated in a single pit, a single material destination (crusher area or a DRSF), and a single hauling route for each of the multiple modeling scenarios. The actual mining activity fugitive emissions will be spread out over multiple pits, material destinations, and hauling routes for a given LOM year.

- The higher background concentrations that include medium traffic emissions discussed in Section 5.8.3 may be combined with the SGP model-predicted maximum design concentrations in Section 6.1 to provide an additional level of conservatism in demonstrating compliance.

Portable light plants powered by diesel-fired generators will be used to support nighttime operations at the SGP. The portable light plants will be operated within the SGP stationary source year-round and will not remain at any single location within the stationary source for more than 12 consecutive months. Therefore, these light plant generator engines will meet the following criteria of nonroad engines from 40 CFR 1068.30:

a) Mounted on a piece of equipment (i.e., skid, trailer, or platform) that is portable; and

b) Not remain at a single location for more than 12 consecutive months.

6.0 RESULTS AND DISCUSSION

This section provides the SGP air quality analyses results for the criteria pollutants and TAP. The model input, output, and the associated processing files are provided on a digital media in Appendix D.

6.1 Criteria Pollutant Impact Results

As discussed in Section 4.6.1, SIL analyses were not performed for this report. The results (highest of 14 scenarios) from AERMOD dispersion modeling performed for the SGP NAAQS impact analyses are provided in Table 40. See Appendix C for the results of each scenario.

Table 40. SGP NAAQS Impact Analyses Results

Pollutant	Averaging Time[1]	Max. Conc. (μg/m³)	Model Scenario	Back. Conc. (μg/m³)	Total Conc. (μg/m³)	NAAQS (μg/m³)	In Compliance
CO	8 hours	6,218	W1	1,110	7,328	10,000	Yes
	1 hour	17,054	W1	1,740	18,794	40,000	Yes
NO_2	1 year	2.3	W1	0.9	3.2	100	Yes
	1 hour	116.7	B1	4.3	121.0	188	Yes
$PM_{2.5}$[2]	1 year	4.2	W5	3.5	7.7	12	Yes
	24 hours	11.0	W5	15.0	26.0	35	Yes
PM_{10}[2]	24 hours	75.7	W5	37.0	112.7	150	Yes
SO_2	3 hours	1.8	B1	16.8	18.6	1,300	Yes
	1 hour	3.2	B1	12.3	15.5	196	Yes

Max. Conc. = maximum modeled design concentration; Back. Conc. = background concentration; Total Conc. = total (modeled + background) concentration

[1] See Table 6 for the design values/ranks.

[2] Results with alternate meteorological data.

Table 40 provides the model-predicted maximum design concentration (including the hot-spot analyses) and the associated modeling scenario, the background concentration, and the estimated total concentration (SGP impact plus background) for each pollutant-averaging time combination. A comparison of the estimated total concentrations with the applicable NAAQS is also provided in this table.

As shown in Table 40, the estimated total concentrations from the SGP cumulative analyses do not exceed the applicable NAAQS.

The PM_{10} modeling with the meteorological dataset processed with the BULKRN method shows up to two receptors for three modeling scenarios (W1, W3, and W5) with slight exceedance of NAAQS. For these three scenarios, the PM_{10} 24-hour hot-spot analyses were performed with the

alternate meteorological dataset processed without the BULKRN method (discussed in Section 5.2). The hot-spot analyses results show compliance with the PM_{10} 24-hour NAAQS, and the highest impact from the hot-spot analyses is shown in Table 40. For consistency purpose, the $PM_{2.5}$ results provided in Table 40 are also from the hot-spot analyses performed with alternate meteorological data.

The locations of the maximum impacts for each pollutant and averaging time are illustrated in Figure 10. The results presented in this figure include the hot-spot analysis conducted for each applicable pollutant-averaging time combination.

As discussed in Section 5.11, the higher background concentrations that include medium traffic emissions provided in Section 5.8.3 may be combined with the SGP model-predicted maximum design concentrations (Table 40) to provide an additional level of conservatism in demonstrating compliance. These results are shown in Table 41.

Table 41. SGP NAAQS Impact Analyses Results with Medium Traffic Background Concentrations

Pollutant	Averaging Time(1)	Max. Conc. (μg/m³)	Model Scenario	Back. Conc. (μg/m³)	Total Conc. (μg/m³)	NAAQS (μg/m³)	In Compliance
CO	8 hours	6,218	W1	1,145	7,363	10,000	Yes
	1 hour	17,054	W1	1,797	18,851	40,000	Yes
NO_2	1 year	2.3	W1	2.6	4.9	100	Yes
	1 hour	116.7	B1	14.3	131.0	188	Yes
$PM_{2.5}$(2)	1 year	4.2	W5	5.1	9.3	12	Yes
	24 hours	11.0	W5	17.5	28.5	35	Yes
PM_{10}(2)	24 hours	75.7	W5	60.1	135.8	150	Yes
SO_2	3 hours	1.8	B1	16.8	18.6	1,300	Yes
	1 hour	3.2	B1	12.3	15.5	196	Yes

Max. Conc. = maximum modeled design concentration; Back. Conc. = background concentration; Total Conc. = total (modeled + background) concentration

(1) See Table 6 for the design values/ranks.

(2) Results with alternate meteorological data.

Modeling for ozone and secondary $PM_{2.5}$ were not performed for this minor stationary source. These analyses are typically associated with applications for major stationary sources. Nonetheless, ratioing the VOC, NO_X, and SO_2 emissions from Table 2 and Table 4 by the emissions and resulting concentrations of O_3 and secondary $PM_{2.5}$ from EPA's modeled emission rates for precursors (MERPs) guidance yields estimated O_3 and secondary $PM_{2.5}$ concentrations of less than 1 ppb of O_3 and less than 0.1 μg/m³ of $PM_{2.5}$ (24-hour and annual)

for the SGP. These estimated concentrations will have a negligible effect on compliance demonstration with the NAAQS.

☒ *Model input and output files for the cumulative NAAQS impact analyses are provided with the application.*

☒ *If there were modeled NAAQS violations, all violations were analyzed and clearly show that the project did not significantly contribute to those modeled violations. If there were multiple violations at a given receptor, all cumulative impacts (including background) for the averaging period analyzed were ranked along with the project contribution, and the project contributions were below the applicable SIL. A table was included to show all ranked impacts above the NAAQS along with the project contribution.*

6.2 TAP Impact Analyses

The SGP TAP modeling results and their comparison with the applicable AACC are provided in Table 42.

Table 42. SGP TAP Analyses Results

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	Model Scenario	AAC (μg/m³)	AACC (μg/m³)	In Compliance
Antimony	24 hours	0.02705	B1	25	--	Yes
Arsenic	Annual	0.00008	All	--	0.00023	Yes
Cadmium	Annual	0.00001	All	--	0.00056	Yes
Formaldehyde	Annual	0.00076	All	--	0.077	Yes
Nickel	Annual	0.00006	All	--	0.0042	Yes
Sulfuric Acid	24 hours	0.52563	All	50	--	Yes

Table 42 shows that the modeled TAP impacts from the SGP sources do not exceed the applicable AACC.

The locations of the maximum impacts for each TAP are presented in Figure 11.

Figure 10. SGP Cumulative Impacts (µg/m³) and Locations

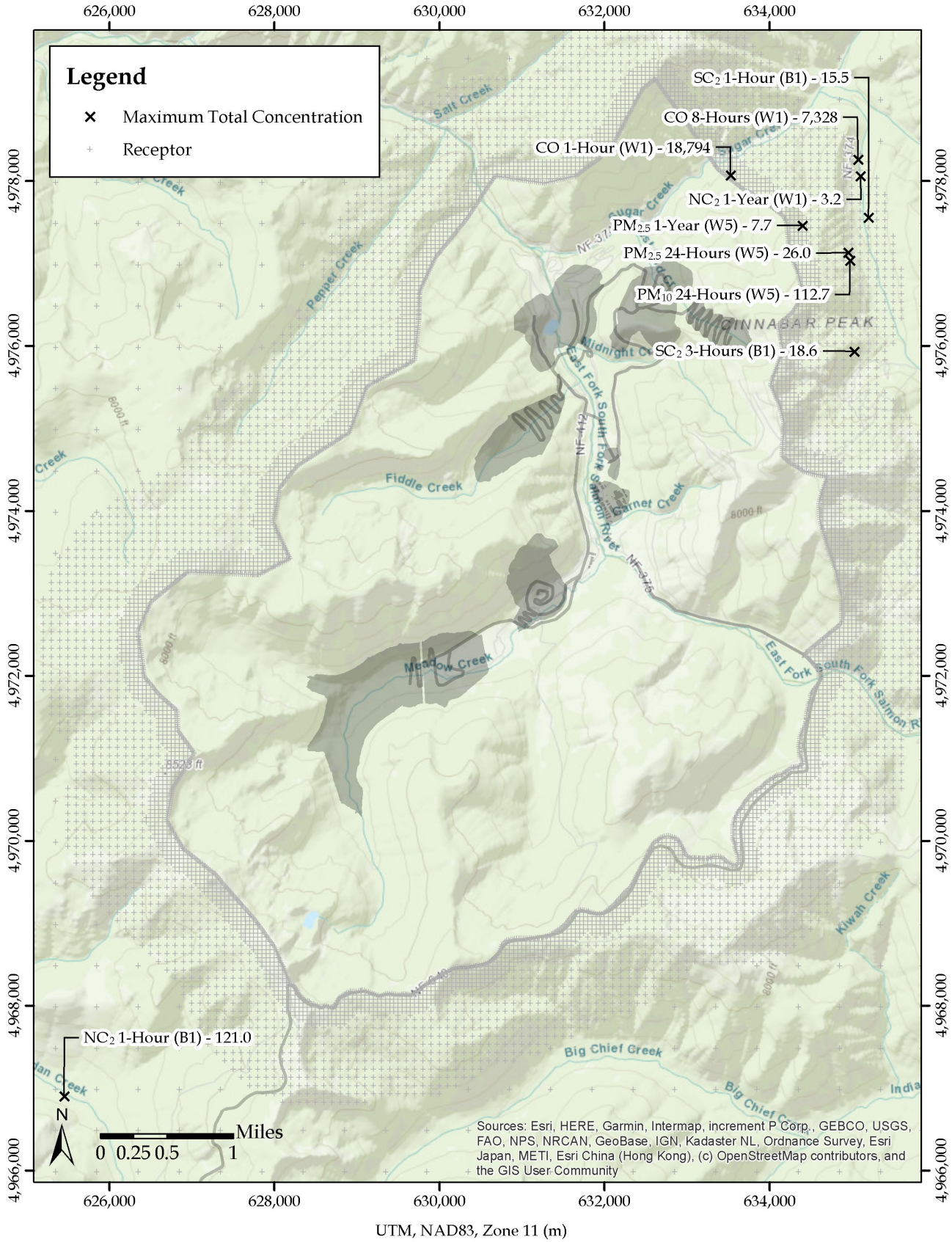
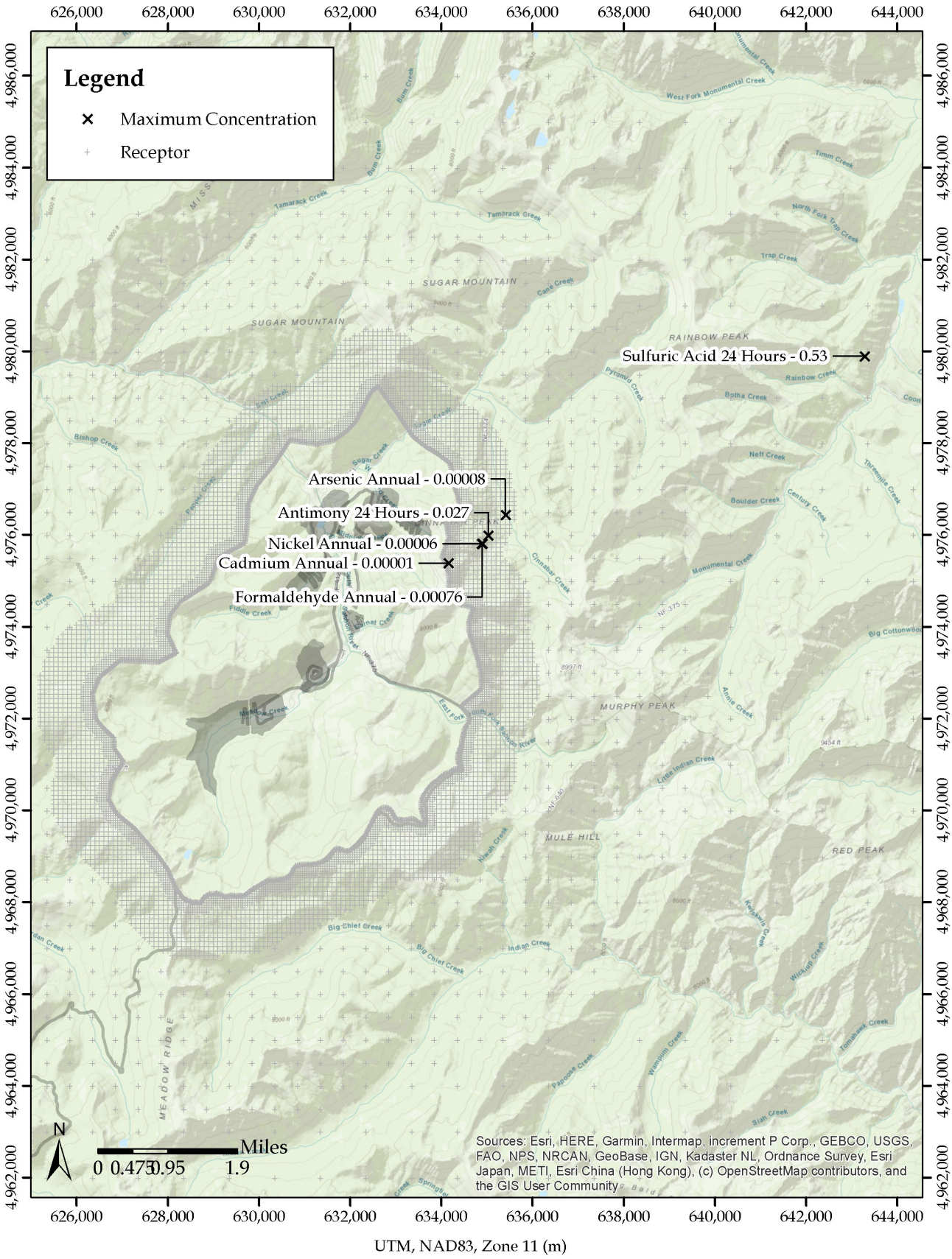


Figure 11. SGP TAP Impacts (µg/m³) and Locations



7.0 QUALITY ASSURANCE/CONTROL

Proven and standard quality assurance and quality control methods were used to ensure that possible errors were identified and eliminated. Applicable agency-reviewed and approved datasets (meteorological, background) were used. Utmost care and caution were exercised during each step of the emission and source characterization, model setup, and data processing (AERMAP, AERSURFACE, AERMET, BPIP, etc.)

The emission factors, underlying assumptions, calculations, and characterizations for the model input were peer and/or agency-reviewed for accuracy and appropriateness. The model input building and source characterization were carefully reviewed using the Air Sciences visual model tool available at https://aerearth.airsci.com/. This tool generates a three-dimensional depiction of the buildings and sources from AERMOD input files that can be reviewed on Google Earth. Other in-house tools were utilized to verify if the emission rates and source parameters were accurately imported into the AERMOD input files. Model output files and results were carefully reviewed to identify and eliminate possible errors. Additional modeling tools like source contributions, were used to logically verify the modeling results.

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Appendix A – Model Parameter / Assumption / Data Level of Conservatism IDEQ Forms

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Tables

Table 1. Summary of Parameters and Conservatism A-2

1.0 Introduction

This appendix provides conservatism analyses, requested by DEQ, for four key parameters used in the modeling analyses:

- Unpaved Road Daily Emission Factor
- Unpaved Road Control Efficiency
- Mining Production Rate
- AERMOD Model

These analyses are presented on the DEQ form provided to Midas Gold during the October 15, 2019 application meeting. The level of conservatism of each parameter is summarized in Table 1.

Table 1. Summary of Parameters and Conservatism

Parameter	Value Used in Application	Comparative Value	Comparative Value Basis
Unpaved Road Daily Emission Factor	3.55 lb PM_{10}/VMT	0.683 lb PM_{10}/VMT	Wyoming Division of Air Quality
Unpaved Road Control Efficiency			
• Chemical suppressants (all tpyes)	90%	90% - 99%	AP-42 Section 13.2.2 referenced test reports
• $MgCl_2$	90%	98%	AP-42 Section 13.2.2 referenced test reports
• Watering	33%	75% - 95%	AP-42 Figure 13.2.2-2
Mining Production Rate	65,700,000 ton/yr 2 blast/day	42,692,000 ton/yr 1 blast/day	Actual peak production rates
	Unit Model Results	**Unit Observed Results**	
AERMOD Model	**1.41 – 3.21**	**1**	EPA evaluation studies

As shown in Table 1, the parameters used in the application are conservative.

2.0 Unpaved Road Daily Emission Factor

Parameter / Assumption / Data: Unpaved Road Daily Emission Factor
Description: AP-42 Section 13.2.2. Unpaved Roads, $E = k\ (s/12)^a(W/3)^b$ where • E = 3.55 lb PM_{10}/VMT • k, a, b = empirical constants provided in AP-42 Table 13.2.2-1 • s = surface material silt content (4%) • W = mean vehicle weight (182.6 tons)
Sensitivity of Results to Parameter: Haul truck travel on haul roads accounts for 50% of the total daily PM_{10} emissions and 32% of the total daily $PM_{2.5}$ emissions (based on Scenario W5; the highest PM_{10} and $PM_{2.5}$ modeling scenarios).
Uncertainty Associated with Parameter Value: The EPA quality rating for this emission factor is B. This quality code is retained because of the following: • The silt content used comes from onsite data.[1,2] • The silt content (4%) is in the AP-42 range of 1.8%–25.2%. • The mean vehicle weight (182.6 tons) is in the AP-42 range of 2–290 tons. [1] Note that the use of non-onsite, default silt values from AP-42 Table 13.2.2-1 would reduce the quality code by two letters (EPA 2006). [2] The use of onsite parent soil silt data is conservative because tests "show that road silt is normally lower than in the surrounding parent soil" (EPA 2006).
Variability of Parameter: The emission factor varies by silt content and mean vehicle weight. The applicable ranges for these parameters are as follows: • Silt – 3.5%–4%[1] • Mean vehicle weight – 59.4–256.6 tons[2] [1] The silt value is derived from site-specific soil data: a geomean of 3.5% and a median value of 4.0% (Midas Gold 2015). See the soil data calculation following this form. As noted in the background documentation for EPA AP-42 Section 13.2.2, EPA uses the geomean to average environmental measurements, as these measurements vary widely and do not yield a normal distribution curve (MRI 1998) (MRI 2006); however, this application uses the higher median value for a more conservative estimate. [2] A weight of 182.6 tons was used in this application, and it is based on a 20:12 ratio of 200- and 44-ton haul trucks with average weights of 256.6 and 59.4 tons, respectively. A higher ratio of 200-ton trucks would result in a higher emission factor. However, it would also reduce the number of hauling trips and vehicle miles traveled (VMT), which would lower emissions.
Conservatism of Parameter: The conservatism of the emission factor can be assessed by comparing the emission factor used in the application with the Wyoming Division of Air Quality (WDAQ) unpaved road emission factor: $E = k*0.81s(S/30)^2(0.62)(2.5)$. where • E = 0.683 lb PM_{10}/VMT • k = PM_{10} size fraction factor; 1.5/4.9 = 0.306 (EPA 2006)

- s = surface material silt content; 4%
- S = vehicle speed; 20 mph

The application value of 3.55 lb PM_{10}/VMT is more conservative than the WDAQ value of 0.683 lb PM_{10}/VMT.

Other Notes/Considerations: AP-42 suggests that the silt content of a chemically treated road may be increased through the grinding of small particles by vehicles. AP-42 provides no information as to what this increase might be or how it is calculated. AP-42 also states that the same vehicles will decrease the road silt content because "fines are continually removed by the vehicle traffic" (EPA 2006).

Neither AP-42 nor the AP-42 background documents provide any quantification of the competing vehicle processes that both increase road silt (vehicle grinding) and at the same time decrease it (vehicle traffic). Midas Gold knows of no methodology that has been used in air quality analyses to quantify the net effect of vehicles on the silt content of chemically treated roads.

It is, however, a common and accepted practice to apply control efficiency for chemical suppressant application and/or watering to the unpaved road emission factor and to use a silt value from the following sources, presented from most to least representative:

- Onsite data; parent soil silt is a conservative approximation of road surface silt
- EPA default values by state; Idaho
- AP-42 default values from Table 13.2.2-1; "use of this data is strongly discouraged when it is feasible to obtain locally gathered data" (EPA 2006)

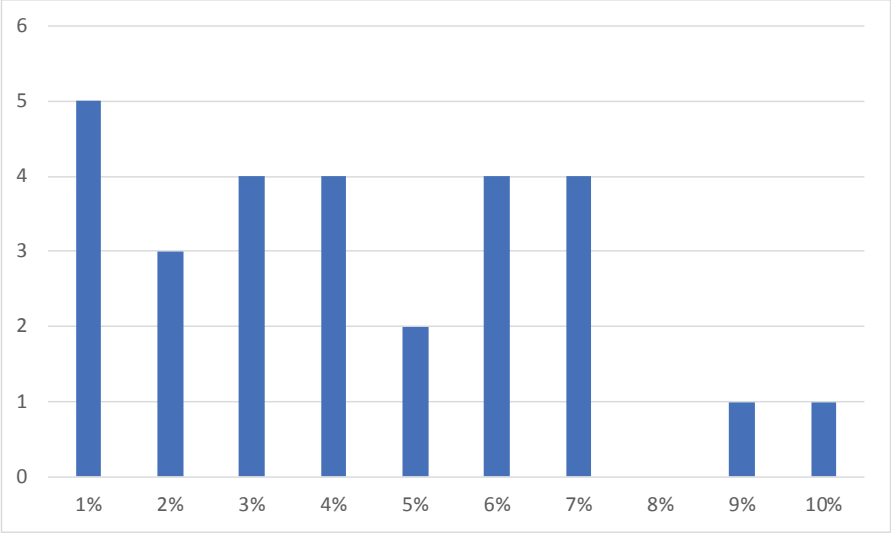
Soil Resources Baseline Study (Midas Gold 2015)
Stibnite Gold Project
Midas Gold, Inc.
Apr-2015

	<#200
PT1-1019	2%
PT1-1042	7%
PT1-1062	10%
PT1-1080	3%
PT1-1096	3%
PT1-1107	7%
PT1-1121	4%
PT1-1154	7%
1174	3%
1196	1%
1407	2%
1420	5%
1676	6%
1685	7%
1698	6%
1433	1%
1475	6%
1522	4%
1530	1%
1549	1%
1554	1%
1577	4%
1912	9%
1931	6%
1948	4%
1956	2%
1978	5%
1992	3%
Median	4.0%
Count	28
Geomean	3.5%

Frequency Distribution

1%	5
2%	3
3%	4
4%	4
5%	2
6%	4
7%	4
8%	0
9%	1
10%	1

Graph illustrates skewed dataset; use geomean or median for the average silt.



3.0 Unpaved Road Control Efficiency

Parameter / Assumption / Data: Unpaved Road Control Efficiency
Description: • 90% control efficiency for dust from chemical dust suppressant application • 33% control efficiency for dust from watering for daily emissions • 0% control efficiency for dust from watering for annual emissions (the precipitation equation is used instead of a control efficiency factor)
Sensitivity of Results to Parameter: See the discussion in Section 2.0.
Uncertainty Associated with Parameter Value: The control efficiency is dependent on proper application, which can be verified through monitoring and record keeping.
Variability of Parameter: <u>Chemical Suppressant Application</u> Air Sciences' memorandum dated January 12, 2018 (Air Sciences 2018) provides the range of control efficiencies published in the chemical suppressant test studies referenced by AP-42 Section 13.2.2. These test studies measured a variety of chemicals and showed the following ranges of control efficiencies for PM_{10}: • All chemicals: 90% to 99% • Hygroscopic chloride salts (e.g., $CaCl_2$ and $MgCl_2$): 93% to 98%[1] [1] The DRI 1996 test study (DRI 1996) cited a 1994 test study that showed a 98% reduction in PM_{10} emissions from unpaved roads treated with $MgCl_2$ (Flocchini et al. 1994). This data point was not included in the Air Sciences' memorandum because the memorandum only included the results from the actual test studies conducted for the purpose of the report and not data cited from other documents for comparative purposes. Midas Gold currently plans to use $MgCl_2$ (Midas Gold 2016), but it may use other chemicals that are equally effective and environmentally safe. <u>Watering</u> Watering reduces dust by 75% to 95%. See AP-42 Figure 13.2.2-2 (EPA 2006) for moisture ratios ranging from 2 to 5. Because the unpaved road emission factor in AP-42 Section 13.2.2 is based on a very dry surface moisture of 0.2% (MRI 1998), increasing the surface moisture to only 1% moisture is all that is required to achieve 95% control.
Conservatism of Parameter: The conservatism of the control efficiency can be assessed by comparing the values used in this application with the AP-42 data discussed above: • **The application value of 90% for chemical suppressant is more conservative than the AP-42 referenced test data of 90% to 99% (98% for $MgCl_2$).** • **The application value of 33% for watering is more conservative than the AP-42 range of 75% to 95%.**
Other Notes/Considerations:

4.0 Mining Production Rate

Parameter / Assumption / Data: Mining Production Rate
Description: This application is based on the following mining production rates: • 180,000 ton/day, total of ore and development rock • 2 blast/day
Sensitivity of Results to Parameter: Mining activities account for 95% of the total PM_{10} emissions and 73% of the total $PM_{2.5}$ emissions (Scenario W3).
Uncertainty Associated with Parameter Value: None – These production rates are highly conservative maximums, which can be verified through monitoring and record keeping.
Variability of Parameter: None – These production rates are highly conservative maximums.
Conservatism of Parameter: The conservatism of the mining production rates can be assessed by comparing the values used in this application with the actual production rates for the peak mining year. During the peak mining year, the production will be 42,692,000 ton/yr and 1 blast/day. **The application values of 62,700,000 ton/yr (180,000 ton/day * 365 day/yr) and 2 blast/day are more conservative than the actual peak production rates of 42,692,000 ton/yr and 1 blast/day.**
Other Notes/Considerations:

5.0 AERMOD Model

Parameter / Assumption / Data: AERMOD Model

Description:
This application utilized the AERMOD model to predict ambient air pollutant concentrations. The meteorological data processing (met processing) utilized the default options of the adjusted surface friction velocity (ADJ_U*) and the Bulk Richardson (BULKRN) method for boundary-layer parameter calculations or the non-BULKRN method that included McCall cloud cover data.

Sensitivity of Results to Parameter: Not applicable

Uncertainty Associated with Parameter Value: None – The model and met processing options are EPA-approved default methods.

Variability of Parameter: None – The maximum design value (a single value for each pollutant and averaging time) is used to determine compliance.

Conservatism of Parameter: The conservatism of the model and met processing was evaluated by EPA as a part of its approval process. This evaluation quantified the bias of the model compared to the actual observed concentrations. The results of the evaluation for the same modeling conditions[1] used in this application are provided below:

Evaluation	Modeled/Observed[2]
Tracy Power Plant, NV	1.7
Lovett Power Plant, NY	2.21–3.21
Oak Ridge, TN	1.41
Cordero Rojo Mine, WY	1.72
Idaho Falls, ID	2.08

[1] The modeling conditions for the above evaluation studies are as follows: complex terrain and/or low-level sources, 10-meter tower meteorological data, and met processing with ADJ_U*, no turbulence, and non-BULKRN (EPA 2018) (EPA 2017) (EPA 2016). The conditions match those used in the application.
[2] (EPA 2017)

The AERMOD modeling performed for the application has a conservative bias to over predict impacts by a factor of 1.41 to 3.21.

Other Notes/Considerations: As discussed above, modeling was performed using the following two methods:

- ADJ_U*/BULKRN
- ADJ_U*/non-BULKRN (the same method as that in the EPA evaluation studies)

For all model runs, the ADJ_U*/BULKRN method resulted in higher design value concentrations than the ADJ_U*/non-BULKRN method did; therefore, the percentage of conservatism for the ADJ_U*/BULKRN method is higher.

6.0 References

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Appendix B – Emissions Inventory and Modeling Parameters

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Facility-Wide Criteria Pollutant PTE

	PM	PM10		PM2.5		CO		NOX		SO2		VOC
Activity	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Process & Ancillary	87.3	21.7	56.3	13.4	36.4	33.5	30.5	55.4	37.9	1.9	6.5	4.8
Mining Fugitive	3,569	225	986	22.5	98.9	1,742	636	46.8	17.1	9.4E-02	3.4E-02	0.0E+00
Total	3,656	246	1,042	35.9	135	1,776	666	102	54.9	2.0	6.5	4.8

Mining fugitive emissions are for model scenario: W3

Permitting Applicability

	PM	PM10	PM2.5	CO	NOX	SO2
	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
Total Process & Ancillary	87.3	56.3	36.4	30.5	37.9	6.5
Significant Threshold [1]	25	15	10	100	40	40
	Above	Above	Above	Minor	Minor	Minor
Regulatory Concern Threshold (10% of Significant) [2]						
	2.5	1.5	1	10	4	4
	Permit	Permit	Permit	Permit	Permit	Permit
Major Source Determination		100	100	100	100	100
		Minor	Minor	Minor	Minor	Minor

[1] *IDAPA 58.01.01.006.108.a.*

[2] *IDAPA 58.01.01.221.01*

Modeling Applicability

	PM10	PM2.5		CO	NOX		SO2		Pb
	lb/hr	lb/hr	ton/yr	lb/hr	lb/hr	ton/yr	lb/hr	ton/yr	lb/month
Process & Ancillary	21.7	13.4	36.4	33.5	55.4	37.9	1.9	6.5	4.4E-02
Mining Fugitive	225	22.5	98.9	1,742	46.8	17.1	9.4E-02	3.4E-02	0.0E+00
Total	246	35.9	135	1,776	102	54.9	2.0	6.5	4.4E-02
Level I Thresholds [1]	0.22	0.054	0.35	15	0.20	1.20	0.21	1.2	14
Modeling Triggered?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No

[1] *IDEQ, Guideline for Performing Air Quality Impact Analyses Table 2, September-2013*

Permit to Construct Processing Fee Determination [1]

Regulated Pollutant	ton/yr
PM10	56.3
CO	30.5
NOX	37.9
SO2	6.5
VOC	4.8
Total [2]	136

[1] *Process & Ancillary Sources Only*

[2] *In accordance with 58.01.01.225, the Permit to Construct Processing Fee will be $7,500. This is for a non major new source with an increase of emissions of 100 tpy or more.*

Conversions
2,000 lb/ton
8,760 hr/yr

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total-ton/yr fug-ton/yr

Facility-Wide HAP PTE and Major Source Determination

CAS No.	HAP	Process ton/yr	Mining ton/yr	Total ton/yr
106-99-0	1,3-Butadiene	3.67E-6	--	3.67E-6
91-57-6	2-Methylnaphthalene	4.85E-6	--	4.85E-6
56-49-5	3-Methylchloranthrene	3.64E-7	--	3.64E-7
57-97-6	7,12-Dimethylbenz(a)anthracene	3.24E-6	--	3.24E-6
83-32-9	Acenaphthene	7.09E-6	--	7.09E-6
208-96-8	Acenaphthylene	1.38E-5	--	1.38E-5
75-07-0	Acetaldehyde	1.07E-4	--	1.07E-4
107-02-8	Acrolein	1.98E-5	--	1.98E-5
120-12-7	Anthracene	2.39E-6	--	2.39E-6
7440-36-0	Antimony	3.00E-1	--	3.00E-1
7440-38-2	Arsenic	1.76E-2	--	1.76E-2
56-55-3	Benz(a)anthracene	1.40E-6	--	1.40E-6
71-43-2	Benzene	1.60E-3	--	1.60E-3
50-32-8	Benzo(a)pyrene	6.22E-7	--	6.22E-7
205-99-2	Benzo(b)fluoranthene	1.94E-6	--	1.94E-6
191-24-2	Benzo(g,h,i)perylene	1.07E-6	--	1.07E-6
207-08-9	Benzo(k)fluoranthene	6.86E-7	--	6.86E-7
7440-41-7	Beryllium	8.59E-5	--	8.59E-5
7440-43-9	Cadmium	2.50E-4	--	2.50E-4
75-15-0	Carbon disulfide	6.33E-2	--	6.33E-2
7440-47-3	Chromium	5.73E-4	--	5.73E-4
218-01-9	Chrysene	2.55E-6	--	2.55E-6
7440-48-4	Cobalt	1.20E-4	--	1.20E-4
592-01-8	Cyanide	9.73E-1	--	**9.73E-1**
53-70-3	Dibenz(a,h)anthracene	7.85E-7	--	7.85E-7
106-46-7	Dichlorobenzene	2.43E-4	--	2.43E-4
206-44-0	Fluoranthene	7.00E-6	--	7.00E-6
86-73-7	Fluorene	2.13E-5	--	2.13E-5
50-00-0	Formaldehyde	1.54E-2	--	1.54E-2
110-54-3	Hexane	3.64E-1	--	3.64E-1
193-39-5	Indeno(1,2,3-cd)pyrene	9.82E-7	--	9.82E-7
7439-92-1	Lead	2.62E-4	--	2.62E-4
7439-96-5	Manganese	2.17E-2	--	2.17E-2
7439-97-6	Mercury	1.24E-2	3.54E-3	1.60E-2
91-20-3	Naphthalene	3.14E-4	--	3.14E-4
7440-02-0	Nickel	1.63E-3	--	1.63E-3
85-01-8	Phenanthrene	6.36E-5	--	6.36E-5
7723-14-0	Phosphorus	1.81E-2	--	1.81E-2
129-00-0	Pyrene	6.68E-6	--	6.68E-6
7782-49-2	Selenium	4.85E-6	--	4.85E-6
108-88-3	Toluene	1.12E-3	--	1.12E-3
1330-20-7	Xylene	2.99E-4	--	2.99E-4
Total HAP		1.79	3.54E-3	1.80
Major Source Threshold				25
Major Source of HAP				No

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Maximum Single HAP PTE and Major Source Determination

CAS No.	HAP	ton/yr
592-01-8	Cyanide	0.97
Major Source Threshold		10
Major Source of HAP		No

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Toxic Air Pollutant Analysis prop-lb/hr dies mpro-lb/hr fug-lb/hr

		Emissions (lb/hr)					Screening Level (lb/hr)		Determination
CAS No.	HAP/TAP	(1)	(2)	(3)	(4)	Total	(5)	(6)	
106-99-0	1,3-Butadiene	--		--	--	--	--	2.40E-5	EL not exceeded
91-57-6	2-Methylnaphthalene	1.59E-6		--	--	1.59E-6	--	--	--
56-49-5	3-Methylchloranthrene	1.19E-7		--	--	1.19E-7	--	2.50E-6	EL not exceeded
57-97-6	7,12-Dimethylbenz(a)anthracene	1.06E-6		--	--	1.06E-6	--	--	--
83-32-9	Acenaphthene	1.19E-7		--	--	1.19E-7	--	--	--
208-96-8	Acenaphthylene	1.19E-7		--	--	1.19E-7	--	--	--
75-07-0	Acetaldehyde	--		--	--	--	--	3.00E-3	EL not exceeded
107-02-8	Acrolein	--		--	--	--	1.70E-2	--	EL not exceeded
120-12-7	Anthracene	1.59E-7		--	--	1.59E-7	--	--	--
7440-36-0	Antimony	--		6.86E-2	--	6.86E-2	3.30E-2	--	Non-carcinogenic EL exceeded
7440-38-2	Arsenic	1.32E-5		4.36E-3	--	4.37E-3	--	1.50E-6	Carcinogenic EL exceeded
56-55-3	Benz(a)anthracene	1.19E-7		--	--	1.19E-7	--	--	--
71-43-2	Benzene	1.39E-4		--	--	1.39E-4	--	8.00E-4	EL not exceeded
50-32-8	Benzo(a)pyrene	7.93E-8		--	--	7.93E-8	--	2.00E-6	EL not exceeded
205-99-2	Benzo(b)fluoranthene	1.19E-7		--	--	1.19E-7	--	--	--
191-24-2	Benzo(g,h,i)perylene	7.93E-8		--	--	7.93E-8	--	--	--
207-08-9	Benzo(k)fluoranthene	1.19E-7		--	--	1.19E-7	--	--	--
7440-41-7	Beryllium	7.93E-7		2.17E-5	--	2.25E-5	--	2.80E-5	EL not exceeded
7440-43-9	Cadmium	7.26E-5		4.06E-5	--	1.13E-4	--	3.70E-6	Carcinogenic EL exceeded
75-15-0	Carbon disulfide	--		1.45E-2	--	1.45E-2	2.00E+0	--	EL not exceeded
7440-47-3	Chromium	9.25E-5		1.22E-4	--	2.14E-4	3.30E-2	--	EL not exceeded
218-01-9	Chrysene	1.19E-7		--	--	1.19E-7	--	--	--
7440-48-4	Cobalt	5.55E-6		2.35E-5	--	2.91E-5	3.30E-3	--	EL not exceeded
592-01-8	Cyanide	--		2.22E-1	--	2.22E-1	3.33E-1	--	EL not exceeded
53-70-3	Dibenz(a,h)anthracene	7.93E-8		--	--	7.93E-8	--	--	--
106-46-7	Dichlorobenzene	7.93E-5		--	--	7.93E-5	3.00E+1	--	EL not exceeded
206-44-0	Fluoranthene	1.98E-7		--	--	1.98E-7	--	--	--
86-73-7	Fluorene	1.85E-7		--	--	1.85E-7	--	--	--
50-00-0	Formaldehyde	4.95E-3		--	--	4.95E-3	--	5.10E-4	Carcinogenic EL exceeded
110-54-3	Hexane	1.19E-1		--	--	1.19E-1	1.20E+1	--	EL not exceeded
193-39-5	Indeno(1,2,3-cd)pyrene	1.19E-7		--	--	1.19E-7	--	--	--
7439-92-1	Lead	--		1.72E-4	--	1.72E-4	--	--	--
7439-96-5	Manganese	2.51E-5		3.53E-2	--	3.53E-2	6.70E-2	--	EL not exceeded
7439-97-6	Mercury	1.72E-5		5.13E-3	8.08E-4	5.96E-3	--	--	--
91-20-3	Naphthalene	4.03E-5		--	--	4.03E-5	3.33E+0	--	EL not exceeded
7440-02-0	Nickel	1.39E-4		2.89E-3	--	3.03E-3	--	2.70E-5	Carcinogenic EL exceeded
85-01-8	Phenanthrene	1.12E-6		--	--	1.12E-6	--	--	--
7723-14-0	Phosphorus	--		6.12E-3	--	6.12E-3	7.00E-3	--	EL not exceeded
129-00-0	Pyrene	3.30E-7		--	--	3.30E-7	--	--	--
7782-49-2	Selenium	1.59E-6		--	--	1.59E-6	1.30E-2	--	EL not exceeded
108-88-3	Toluene	2.25E-4		--	--	2.25E-4	2.50E+1	--	EL not exceeded
1330-20-7	Xylene	--		--	--	--	2.90E+1	--	EL not exceeded

(1) *HAP/TAP from propane combustion. Detailed emission calculations are provided in ProcHAP sheet.*

(2) *HAP/TAP from diesel combustion. Detailed emission calculations are provided in ProcHAP sheet.*
Diesel engine HAP are regulated by 40CFR63, Subpart ZZZZ and therefore exempt from TAP analysis per IDAPA 58.01.01 Section 210.20.

(3) *HAP/TAP from material processing. Detailed emission calculations are provided in ProcHAP sheet.*

(4) *Fugitive HAP/TAP from mining activity. Detailed emission calculations are provided in MineHg sheet.*

(5) *Non-carcinogenic emission screening level (EL) from IDAPA 58.01.01 Section 585.*

(6) *Carcinogenic EL from IDAPA 58.01.01 Section 586.*

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Toxic Air Pollutant Analysis prop-lb/hr dies-lb/hr mpro-lb/h fug-lb/hr

		Emissions (lb/hr)					Screening Level (lb/h		Determination
CAS No.	Non-HAP TAP	(1)	(2)	(3)	(4)	Total	(5)	(6)	
7440-39-3	Barium	2.91E-4	--	4.71E-3	--	5.00E-3	3.30E-2	--	EL not exceeded
7440-50-8	Copper	5.61E-5	--	2.94E-5	--	8.55E-5	6.70E-2	--	EL not exceeded
7783-06-4	Hydrogen Sulfide	--	--	9.00E-1	--	9.00E-1	9.33E-1	--	EL not exceeded
7439-98-7	Molybdenum	7.26E-5	--	5.88E-6	--	7.85E-5	3.33E-1	--	EL not exceeded
109-66-0	Pentane	1.72E-1	--	--	--	1.72E-1	1.18E+2	--	EL not exceeded
7440-22-4	Silver	--	--	2.94E-6	--	2.94E-6	7.00E-3	--	EL not exceeded
7664-93-9	Sulfuric Acid	--	--	2.03E+0	--	2.03E+0	6.70E-2	--	Non-carcinogenic EL exceeded
7440-28-0	Thallium	--	--	5.88E-5	--	5.88E-5	7.00E-3	--	EL not exceeded
7440-61-1	Uranium	--	--	5.88E-5	--	5.88E-5	1.30E-2	--	EL not exceeded
7440-62-2	Vanadium	1.52E-4	--	--	--	1.52E-4	3.00E-3	--	EL not exceeded
7440-66-6	Zinc	1.92E-3	--	--	--	1.92E-3	6.67E-1	--	EL not exceeded

(1) *HAP/TAP from propane combustion. Detailed emission calculations are provided in ProcHAP sheet.*

(2) *HAP/TAP from diesel combustion. Detailed emission calculations are provided in ProcHAP sheet.*

(3) *HAP/TAP from material processing. Detailed emission calculations are provided in ProcHAP sheet.*

(4) *Fugitive HAP/TAP from mining activity. Detailed emission calculations are provided in MineHg sheet.*

(5) *Non-carcinogenic emission screening level (EL) from IDAPA 58.01.01 Section 585.*

(6) *Carcinogenic EL from IDAPA 58.01.01 Section 586.*

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SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS									EMISSION CON	
Model	Source Description	Design Throughput						Throughput reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference	control	efficiency
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr											system	
OC1	Loader Transfer of Ore to Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760	(Midas Gold 2016), Sec. 10.1	0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Water Sprays	
OC2	Grizzly to Apron Feeder	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC3	Apron Feeder to Dribble Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC4	Apron Feeder to Vibrating Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC5	Dribble Conveyor to Vibrating Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760		0.0012	0.00054	0.0001					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crushing - ctrl.	Water Sprays	
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	1,042	25,000	9,125,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
OC9	Stockpile Transfers to Reclaim Conveyors	1,150	27,600	10,074,000	ton	Ore	8,760	(M3 2017b)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - unctrl.; PM2.5 Ch. 13.2.4	Undergrnd	80%
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	1,150	27,600	10,074,000	ton	Ore	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - unctrl.; PM2.5 Ch. 13.2.4	Undergrnd	80%
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	1,150	27,600	10,074,000	ton	Ore	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - unctrl.; PM2.5 Ch. 13.2.4	Enclosure	80%
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	1,150	27,600	10,074,000	ton	Ore	8,760		0.0012	0.00054	0.0001					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crushing - ctrl.	Water Sprays	
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	1,150	27,600	10,074,000	ton	Ore	8,760		0.00014	4.6E-05	1.3E-05					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. transfer - ctrl.	Moisture Carry-Over	
LS1L	Mill Lime Silo #1 Loading	60	250	4,375	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	20	250	4,375	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.00042					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
MillS2L	Mill Lime Silo #2 Loading	60	250	4,375	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	20	250	4,375	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.00042					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.72	65.28	23,827	MMBtu	Propane	8,760	(M3 2017d)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
Sb2	Sb Bagging	4.5	108	39,420	ton	Stib. Conc.	8,760	(M3 2017d)	0.118	0.118	0.118					lb/hr	Based on NDEP-BAPC Permit for Clay Bagging Operation (Hectatone) (NDEP 2015b)	Baghouse (BH1)	NA
AC	Autoclave	290	6,960	2,540,400	ton	Float Conc.	8,760	(M3 2017b)	5.075	5.075	5.075			0.6525		lb/hr	Based on NDEP-BAPC Permits/test data for Autoclaves: PM & SO2 - [Goldstrike (NDEP 2012)]. Negligible CO due to no organic carbon in the feed (M3 2017a)	Wet Scrubber (WS1)	NA
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	17	17	510	MMBtu	Propane	30	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Ind. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
ACS1L	AC Lime Silo #1 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
ACS2L	AC Lime Silo #2 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
ACS3L	AC Lime Silo #3 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
ACS4L	AC Lime Silo #4 Loading	120	500	8,750	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4	Bin Vent Filter	
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	20	480	8,750	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4	None	0%
CKD	Carbon Regeneration Kiln (Drum)	0.3	7.2	2,628	ton	Carbon	8,760	(M3 2017b)	0.42	0.42	0.42	0.12	0.012		0.11	lb/hr	Based on NDEP-BAPC Permit for Carbon Regeneration Kiln [Goldstrike (NDEP 2012)]	Wet Scrubber (WS2) / Carbon Filter (CA1)	NA
CKB	Carbon Regeneration Kiln (Burners)	2.255	54.12	19,754	MMBtu	Propane	8,760	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
EW	Electrowinning Cells and Pregnant Solution Tank	100	24 hr		gpm	Au Sol.	8,760	Typical Ind. Oper.	0.07	0.07	0.07					lb/hr	Based on similar source stack test data and 5× safety factor (APT 2016)	Shared Carbon Filter (CA2)	
MR	Mercury Retort	0.5/batch	24 hr	21	ton	Au Conc.	1,248	(M3 2017b) & (M3 2017a)	0.01	0.01	0.01					lb/hr	Based on similar source stack test data and 5× safety factor (APT 2017)	Condenser / Carbon Filter (CA3)	
MF	Induction Melting Furnace	0.5/batch	12 hr	21	ton	Au Conc.	624	(M3 2017b) & (M3 2017a)	2.84	2.84	2.84					lb/hr	Based on IDAPA 58.01.01.701 PM Weight Limit	Baghouse (BH2) / Carbon Filter (CA4)	NA

SOURCE DESCRIPTION		TROLS	HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS								
Model	Source Description	reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	UTM E	UTM N
ID			lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	m	m
OC1	Loader Transfer of Ore to Grizzly	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC2	Grizzly to Apron Feeder	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC3	Apron Feeder to Dribble Conveyor	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC4	Apron Feeder to Vibrating Grizzly	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC5	Dribble Conveyor to Vibrating Grizzly	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					632,045	4,974,583
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	Control efficiency included in emission factor	1.25	0.563	0.104					30.0	13.5	2.50					5.48	2.46	0.456					632,045	4,974,583
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	Control efficiency included in emission factor	0.146	0.0479	0.0135					3.50	1.15	0.325					0.639	0.210	0.0593					631,947	4,974,520
OC9	Stockpile Transfers to Reclaim Conveyors	Based on AP-42, Chapter 13.2.4, reduction in EF due to wind speed reduction	0.690	0.253	0.0391					16.6	6.07	0.938					3.02	1.11	0.171					631,947	4,974,520
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	Based on AP-42, Chapter 13.2.4, reduction in EF due to wind speed reduction	0.690	0.253	0.0391					16.6	6.07	0.938					3.02	1.11	0.171					631,947	4,974,520
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	Based on AP-42, Chapter 13.2.4, reduction in EF due to wind speed reduction	0.690	0.253	0.0391					16.6	6.07	0.94					3.02	1.11	0.171					632,113	4,974,243
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	Control efficiency included in emission factor	1.380	0.621	0.1150					33.12	14.90	2.760					6.04	2.720	0.504					632,028	4,974,187
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	Control efficiency included in emission factor	0.1610	0.0529	0.01495					3.864	1.270	0.3588					0.705	0.2317	0.0655					632,028	4,974,187
LS1L	Mill Lime Silo #1 Loading	Control efficiency included in emission factor	0.0594	0.0204	0.00300					0.248	0.0850	0.0125					0.00217	7.44E-4	1.09E-4					632,095	4,974,272
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor		0.0960	0.0560	0.00840					1.20	0.700	0.105					0.0105	0.00613	9.19E-4					632,095	4,974,272
MillS2L	Mill Lime Silo #2 Loading	Control efficiency included in emission factor	0.0594	0.0204	0.00300					0.248	0.0850	0.0125					0.00217	7.44E-4	1.09E-4					632,090	4,974,282
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor		0.0960	0.0560	0.00840					1.20	0.700	0.105					0.0105	0.00613	9.19E-4					632,090	4,974,282
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)		0.0208	0.0208	0.0208	0.223	0.386	0.0473	0.0238	0.499	0.499	0.499	5.35	9.27	1.13	0.571	0.0911	0.0911	0.0911	0.977	1.69	0.207	0.104	632,231	4,974,183
Sb2	Sb Bagging	Control efficiency included in emission factor	0.118	0.118	0.118					2.83	2.83	2.83					0.517	0.517	0.517					632,208	4,974,221
AC	Autoclave	PM control efficiency included in emission factor	5.08	5.08	5.08			0.653		122	122	122			15.7		22.2	22.2	22.2			2.86		632,229	4,974,096
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)		0.130	0.130	0.130	1.39	2.42	0.295	0.149	0.130	0.130	0.130	1.39	2.42	0.295	0.149	0.00195	0.00195	0.00195	0.0209	0.0362	0.00443	0.00223	632,261	4,974,116
ACS1L	AC Lime Silo #1 Loading	Control efficiency included in emission factor	0.119	0.0408	0.00600					0.990	0.340	0.0500					0.00866	0.00298	4.38E-4					632,267	4,974,124
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker		0.0960	0.0560	0.00800					2.30	1.34	0.192					0.0420	0.0245	0.00350					632,267	4,974,124
ACS2L	AC Lime Silo #2 Loading	Control efficiency included in emission factor	0.119	0.0408	0.00600					0.990	0.340	0.0500					0.00866	0.00298	4.38E-4					632,257	4,974,140
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker		0.0960	0.0560	0.00800					2.30	1.34	0.192					0.0420	0.0245	0.00350					632,257	4,974,140
ACS3L	AC Lime Silo #3 Loading	Control efficiency included in emission factor	0.119	0.0408	0.00600					0.990	0.340	0.0500					0.00866	0.00298	4.38E-4					632,248	4,974,156
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker		0.0960	0.0560	0.00800					2.30	1.34	0.192					0.0420	0.0245	0.00350					632,248	4,974,156
ACS4L	AC Lime Silo #4 Loading	Control efficiency included in emission factor	0.119	0.0408	0.00600					0.495	0.170	0.0250					0.00433	0.00149	2.19E-4					632,238	4,974,171
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker		0.0960	0.0560	0.00800					2.30	1.34	0.192					0.0210	0.0123	0.00175					632,238	4,974,171
CKD	Carbon Regeneration Kiln (Drum)	PM control efficiency included in emission factor	0.420	0.420	0.420	0.120	0.0120		0.110	10.1	10.1	10.1	2.88	0.288	0	2.64	1.84	1.84	1.84	0.526	0.0526		0.482	632,013	4,974,051
CKB	Carbon Regeneration Kiln (Burners)		0.0173	0.0173	0.0173	0.185	0.320	0.0392	0.0197	0.414	0.414	0.414	4.44	7.69	0.940	0.473	0.0756	0.0756	0.0756	0.810	1.40	0.172	0.0864	631,998	4,974,042
EW	Electrowinning Cells and Pregnant Solution Tank		0.07	0.07	0.07					1.68	1.68	1.68					0.31	0.31	0.31					631,983	4,974,033
MR	Mercury Retort		0.01	0.01	0.01					0.24	0.24	0.24					0.006	0.006	0.006					632,003	4,974,001
MF	Induction Melting Furnace	Control efficiency included in emission factor	2.84	2.84	2.84					34.1	34.1	34.1					0.89	0.89	0.89					632,032	4,974,019

SOURCE DESCRIPTION		NAD 83 LOCATION		
Model	Source Description	reference	elev	reference
ID			m	
OC1	Loader Transfer of Ore to Grizzly	PC building center	1,968.5	PC building base
OC2	Grizzly to Apron Feeder	PC building center	1,968.5	PC building base
OC3	Apron Feeder to Dribble Conveyor	PC building center	1,968.5	PC building base
OC4	Apron Feeder to Vibrating Grizzly	PC building center	1,968.5	PC building base
OC5	Dribble Conveyor to Vibrating Grizzly	PC building center	1,968.5	PC building base
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	PC building center	1,968.5	PC building base
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	PC building center	1,968.5	PC building base
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	Stockpile center	1,957.0	Stockpile base
OC9	Stockpile Transfers to Reclaim Conveyors	Stockpile center	1,957.0	Stockpile base
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	Stockpile center	1,957.0	Stockpile base
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	Mill building wall opening	2,000.6	Mill building base
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	Pebble crusher building center	1,973.3	Pebble crusher building base
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	Pebble crusher building center	1,973.3	Pebble crusher building base
LS1L	Mill Lime Silo #1 Loading	Mill Silo #1 center	1,992.0	Mill Silo #1 base
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	Mill Silo #1 center	1,992.0	Mill Silo #1 base
MillS2L	Mill Lime Silo #2 Loading	Mill Silo #2 center	1,990.0	Mill Silo #2 base
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	Mill Silo #2 center	1,990.0	Mill Silo #2 base
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	Mill building corner	2,000.6	Mill building base
Sb2	Sb Bagging	Mill building corner	2,000.6	Mill building base
AC	Autoclave	POX building corner	2,007.2	POX building base
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	POX building corner	2,007.2	POX building base
ACS1L	AC Lime Silo #1 Loading	AC Silo #1 center	2,007.2	AC Silo #1 base
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	AC Silo #1 center	2,007.2	AC Silo #1 base
ACS2L	AC Lime Silo #2 Loading	AC Silo #2 center	2,007.2	AC Silo #2 base
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	AC Silo #2 center	2,007.2	AC Silo #2 base
ACS3L	AC Lime Silo #3 Loading	AC Silo #3 center	2,007.2	AC Silo #3 base
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	AC Silo #3 center	2,007.2	AC Silo #3 base
ACS4L	AC Lime Silo #4 Loading	AC Silo #4 center	2,007.2	AC Silo #4 base
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	AC Silo #4 center	2,007.2	AC Silo #4 base
CKD	Carbon Regeneration Kiln (Drum)	Refinery building corner	1,970.3	Refinery building base
CKB	Carbon Regeneration Kiln (Burners)	Along Refinery building wall	1,970.3	Refinery building base
EW	Electrowinning Cells and Pregnant Solution Tank	Refinery building corner	1,970.3	Refinery building base
MR	Mercury Retort	Refinery building corner	1,970.3	Refinery building base
MF	Induction Melting Furnace	Refinery building corner	1,970.3	Refinery building base

SOURCE DESCRIPTION		RELEASE PARAMETERS INPUT						
Model	Source Description	POINT	rel ht (ft)	temp (F)	flow (dscfm)	flow (acfm)	dia (ft)	reference
ID		VOLUME	rel ht (ft)	width (ft)	vert. ln (ft)	grnd ht (ft)	σz type	
OC1	Loader Transfer of Ore to Grizzly	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC2	Grizzly to Apron Feeder	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC3	Apron Feeder to Dribble Conveyor	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC4	Apron Feeder to Vibrating Grizzly	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC5	Dribble Conveyor to Vibrating Grizzly	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	VOLUME	64	52.9	128	128	srf src	PC bldg height and width
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	VOLUME	35.8	3	71.6	71.6	srf src	36" wide belt; 50,000 ton stockpile height
OC9	Stockpile Transfers to Reclaim Conveyors	VOLUME	4	8	8	8	srf src	8' x 8' tunnel exit
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	VOLUME	4	8	8	8	srf src	8' x 8' tunnel exit
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	VOLUME	68	4	4	70	elev src w/ bldg	4' x 4' opening at mid (Mill) bldg height
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	VOLUME	10	32.7	20	20	srf src	Pebble Crusher bldg height and width
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	VOLUME	10	32.7	20	20	srf src	Pebble Crusher bldg height and width
LS1L	Mill Lime Silo #1 Loading	POINT	43.7	Ambient	700	700	0.500	Ht - 3' above silo top; dia & flow from (NDEP 2019)
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
MillS2L	Mill Lime Silo #2 Loading	POINT	43.7	Ambient	700	700	0.500	Ht - 3' above silo top; dia & flow from (NDEP 2019)
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	POINT	150	360	461	1,073	1.0	Flow - EPA M19 (3% O2, 15% moist); 10' above bldg top; 12-in dia; T - std propane boiler exhst
Sb2	Sb Bagging	POINT	150	Ambient	800	1,000	1.0	Ht - 10' above bldg top; Flow - (NDEP 2015b)
AC	Autoclave	POINT	77	196	3,101	28,680	5.0	Ht - 10' above bldg top, Flow & Temp. - (APT 2013)
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	POINT	77	360	2,881	6,703	2.0	Flow - EPA M19 (3% O2, 15% moist); 10' above bldg top; 24-in dia; T - std propane boiler exhst
ACS1L	AC Lime Silo #1 Loading	POINT	57.2	Ambient	1400	1400	0.75	Ht - 3' above silo top; dia & flow from (NDEP 2019)
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
ACS2L	AC Lime Silo #2 Loading	POINT	57.2	Ambient	1400	1400	0.75	Ht - 3' above silo top; dia & flow from (NDEP 2019)
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
ACS3L	AC Lime Silo #3 Loading	POINT	57.2	Ambient	1400	1400	0.75	Ht - 3' above silo top; dia & flow from (NDEP 2019)
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
ACS4L	AC Lime Silo #4 Loading	POINT	47.5	Ambient	1400	1400	0.75	Ht - 3' above silo top; dia & flow from (NDEP 2019)
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
CKD	Carbon Regeneration Kiln (Drum)	POINT	55	150	120	180	0.48	Ht - 10' above bldg top; Temp, Flow, Dia - (NDEP 2017)
CKB	Carbon Regeneration Kiln (Burners)	POINT	46	360	382	889	1.0	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 12-in dia; T - std propane boiler exhst
EW	Electrowinning Cells and Pregnant Solution Tank	POINT	55	100	2,660	3,740	1	Ht - 10' above bldg top; Temp, Flow, Dia - (NDEP 2017)
MR	Mercury Retort	POINT	55	150	16	20	0.29	Ht - 10' above bldg top; Temp, Flow, Dia - (NDEP 2017)
MF	Induction Melting Furnace	POINT	55	150	3,500	5,200	1.25	Ht - 10' above bldg top; Temp, Flow, Dia - (NDEP 2017)

SOURCE DESCRIPTION		MODEL EMISSION RATES / RELEASE PARAMETERS														IDAPA 58.01.01.701 PM Weight Limit			
Model	Source Description	PM_{10}-24	$PM_{2.5}$-24	CO-ALL	NO_2-1	SO_2-1	SO_2-3	PM_{10}-AN	$PM_{2.5}$-AN	NO_2-AN	SO_2-AN	ht (m)	temp (K)	vel (m/s)	dia (m)	Process Weight	Allowable PM	Proposed PM	Compliance
ID		gps	gps	gps	gps	gps	gps	gps	gps	gps	gps	ht (m)	σy (m)	σz (m)		lb/hr	lb/hr	lb/hr	Demonstration
OC1	Loader Transfer of Ore to Grizzly	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC2	Grizzly to Apron Feeder	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC3	Apron Feeder to Dribble Conveyor	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC4	Apron Feeder to Vibrating Grizzly	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC5	Dribble Conveyor to Vibrating Grizzly	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	6.04E-03	1.71E-3					6.04E-3	1.71E-3			19.5	3.75	18.1		2,083,333	41.79	0.146	In Compliance
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	7.09E-02	1.31E-2					7.09E-2	1.31E-2			19.5	3.75	18.1		2,083,333	41.79	1.25	In Compliance
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	6.04E-03	1.71E-3					6.04E-3	1.71E-3			10.9	0.21	10.2		2,083,333	41.79	0.146	In Compliance
OC9	Stockpile Transfers to Reclaim Conveyors	3.19E-02	4.93E-3					3.19E-2	4.93E-3			1.2	0.57	1.1		2,300,000	42.84	0.690	In Compliance
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	3.19E-02	4.93E-3					3.19E-2	4.93E-3			1.2	0.57	1.1		2,300,000	42.84	0.690	In Compliance
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	3.19E-02	4.93E-3					3.19E-2	4.93E-3			20.7	0.28	0.6		2,300,000	42.84	0.690	In Compliance
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	7.82E-02	1.45E-2					7.82E-2	1.45E-2			3.0	2.32	2.8		2,300,000	42.84	1.380	In Compliance
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	6.67E-03	1.88E-3					6.67E-3	1.88E-3			3.0	2.32	2.8		2,300,000	42.84	0.1610	In Compliance
LS1L	Mill Lime Silo #1 Loading	4.46E-04	6.56E-5					2.14E-5	3.15E-6			13.3	0.00	18.1	0.152	120,000	20.47	0.0594	In Compliance
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	3.67E-03	5.51E-4					1.76E-4	2.64E-5			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
MillS2L	Mill Lime Silo #2 Loading	4.46E-04	6.56E-5					2.14E-5	3.15E-6			13.3	0.00	18.1	0.152	120,000	20.47	0.0594	In Compliance
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	3.67E-03	5.51E-4					1.76E-4	2.64E-5			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.62E-03	2.62E-3	2.81E-2	4.87E-2	5.95E-3	5.95E-3	2.62E-3	2.62E-3	4.87E-2	5.95E-3	45.7	455.37	6.9	0.305	-	-	0.0208	N/A
Sb2	Sb Bagging	1.49E-02	1.49E-2					1.49E-2	1.49E-2			45.7	0.00	6.5	0.305	9,000	10.61	0.118	In Compliance
AC	Autoclave	6.39E-01	6.39E-1			8.22E-2	8.22E-2	6.39E-1	6.39E-1		8.22E-2	23.5	364.26	7.4	1.524	580,000	30.36	5.08	In Compliance
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	6.83E-04	6.83E-4	1.76E-1	3.04E-1	3.72E-2	3.72E-2	5.61E-5	5.61E-5	1.04E-3	1.27E-4	23.5	455.37	10.8	0.610	-	-	0.130	N/A
ACS1L	AC Lime Silo #1 Loading	1.78E-03	2.62E-4					8.56E-5	1.26E-5			17.4	0.00	16.1	0.229	240,000	24.35	0.119	In Compliance
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	7.06E-03	1.01E-3					7.05E-4	1.01E-4			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
ACS2L	AC Lime Silo #2 Loading	1.78E-03	2.62E-4					8.56E-5	1.26E-5			17.4	0.00	16.1	0.229	240,000	24.35	0.119	In Compliance
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	7.06E-03	1.01E-3					7.05E-4	1.01E-4			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
ACS3L	AC Lime Silo #3 Loading	1.78E-03	2.62E-4					8.56E-5	1.26E-5			17.4	0.00	16.1	0.229	240,000	24.35	0.119	In Compliance
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	7.06E-03	1.01E-3					7.05E-4	1.01E-4			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
ACS4L	AC Lime Silo #4 Loading	8.92E-04	1.31E-4					4.28E-5	6.29E-6			14.5	0.00	16.1	0.229	240,000	24.35	0.119	In Compliance
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	7.06E-03	1.01E-3					3.52E-4	5.03E-5			1.4	0.07	0.1		40,000	15.56	0.0960	In Compliance
CKD	Carbon Regeneration Kiln (Drum)	5.29E-02	5.29E-2	1.51E-2	1.51E-3			5.29E-2	5.29E-2	1.51E-3		16.8	338.71	5.1	0.146	600	2.09	0.420	In Compliance
CKB	Carbon Regeneration Kiln (Burners)	2.17E-03	2.17E-3	2.33E-2	4.04E-2	4.94E-3	4.94E-3	2.17E-3	2.17E-3	4.04E-2	4.94E-3	14.0	455.37	5.8	0.305	-	-	0.0173	N/A
EW	Electrowinning Cells and Pregnant Solution Tank	8.82E-03	8.82E-3					8.82E-3	8.82E-3			16.8	310.93	24.2	0.305	-	-	0.07	N/A
MR	Mercury Retort	1.26E-03	1.26E-3					1.80E-4	1.80E-4			16.8	338.71	1.5	0.088	1,000	2.84	0.01	In Compliance
MF	Induction Melting Furnace	1.79E-01	1.79E-1					2.55E-2	2.55E-2			16.8	338.71	21.5	0.381	1,000	2.84	2.84	In Compliance

SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS									EMISSION CON	
Model	Source Description	Design Throughput						Throughput reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference	control	efficiency
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr											system	
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	1,000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)	None	NA
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	1,000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)	None	NA
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	1,000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)	None	NA
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	200	1 hr	20,000	bkW	Diesel	100	Typical Ind. Oper.	0.2	0.2	0.2	3.5	4	0.00657	4	g/kW-hr	Table 4 to Subpart IIII of Part 60 – 130≤KW<225 (175≤HP<300); SO2 - mass balance (15ppm ULSD) (CFR 2018a)	None	NA
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	0.10	2.4	876	MMBtu	Propane	8,760	(M3 2017a)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	5.00	120	43,800	MMBtu	Propane	8,760	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	0.50	12	4,380	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	2.00	48	17,520	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	3.00	72	26,280	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	NA
PSL	Prill Silos Loading (2 x 100 ton)	200	200	7,300	ton	Prill	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.02	0.007	0.00106					lb/ton	AP-42, Table 8.3-2 (7/93), Bulk Loading - unctrl; PM10/PM2.5 Ch. 13.2.4	None	0%
PSU	Prill Silos Unloading (2 x 100 ton)	200	200	7,300	ton	Prill	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.02	0.007	0.00106					lb/ton	AP-42, Table 8.3-2 (7/93), Bulk Loading - unctrl; PM10/PM2.5 Ch. 13.2.4	None	0%
CS1L	Cement/Shotcrete Silo #1 Loading	80	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4.	Bin Vent Filter	
CS1U	Cement/Shotcrete Silo #1 Unloading	20	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.	None	0%
CS2L	Cement/Shotcrete Silo #2 Loading	80	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.00099	0.00034	0.00005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4.	Bin Vent Filter	
CS2U	Cement/Shotcrete Silo #2 Unloading	20	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.	None	0%
CAL	Aggregate Bin Loading	100	2,400	500,000	ton	Aggregate	8,760	Typical Ind. Oper.	0.0069	0.0033	0.0005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4.	None	0%
CAU	Aggregate Bin Unloading	100	2,400	500,000	ton	Aggregate	8,760	Typical Ind. Oper.	0.0069	0.0033	0.0005					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.	None	0%
CM	Central Mixer Loading	20 (120)	80 (2,480)	60,000 (560K)	ton-cement (tot.)	Cement (mix)	8,760	Typical Ind. Oper.	0.0184	0.0055	0.0008					lb/ton	AP-42, Table 11.12-2 (6/06), central mixer-ctrl.; PM2.5 Ch. 13.2.4.	Types of controls used may include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central duct collection systems, and the like.	
TG1	Mine Site Gasoline Tank #1			250,000	gal	Gasoline	8,760	(Midas Gold 2016), Table 12-4, annual use.							0.219	lb/hr	EPA Tanks 4.0.9d	None	NA
TG2	Mine Site Gasoline Tank #2			250,000	gal	Gasoline	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide tank capacity)							0.219	lb/hr	EPA Tanks 4.0.9d	None	NA
TD3	Mine Site Diesel Tank #3			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD4	Mine Site Diesel Tank #4			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD5	Mine Site Diesel Tank #5			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD6	Mine Site Diesel Tank #6			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD7	Mine Site Diesel Tank #7			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD8	Mine Site Diesel Tank #8			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA

SOURCE DESCRIPTION		TROLS	HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS								
Model	Source Description	reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	UTM E	UTM N
ID			lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	m	m
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)		0.441	0.441	0.441	7.72	14.1	0.0145	2.87	0.441	0.441	0.441	7.72	14.11	0.01448	2.866	0.0220	0.0220	0.0220	0.386	0.705	7.24E-4	0.143	634,274	4,972,050
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)		0.441	0.441	0.441	7.72	14.1	0.0145	2.87	0.441	0.441	0.441	7.72	14.11	0.01448	2.866	0.0220	0.0220	0.0220	0.386	0.705	7.24E-4	0.143	632,105	4,974,154
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)		0.441	0.441	0.441	7.72	14.1	0.0145	2.87	0.441	0.441	0.441	7.72	14.11	0.01448	2.866	0.0220	0.0220	0.0220	0.386	0.705	7.24E-4	0.143	632,109	4,974,148
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)		0.0882	0.0882	0.0882	1.54	1.76	0.00290	1.76	0.0882	0.0882	0.0882	1.543	1.764	2.90E-3	1.764	0.00441	0.00441	0.00441	0.0772	0.0882	1.45E-4	0.0882	632,113	4,974,141
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)		7.65E-4	7.65E-4	7.65E-4	0.00820	0.0142	0.00174	8.74E-4	0.0184	0.0184	0.0184	0.197	0.341	0.0417	0.0210	0.00335	0.00335	0.00335	0.0359	0.0622	0.00761	0.00383	632,216	4,974,118
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)		0.0383	0.0383	0.0383	0.410	0.710	0.0869	0.0437	0.918	0.918	0.918	9.84	17.0	2.09	1.05	0.168	0.168	0.168	1.80	3.11	0.381	0.191	632,017	4,974,010
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)		0.0306	0.0306	0.0306	0.328	0.568	0.0695	0.0350	0.734	0.734	0.734	7.87	13.6	1.67	0.839	0.134	0.134	0.134	1.44	2.49	0.304	0.153	632,287	4,974,227
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)		0.0306	0.0306	0.0306	0.328	0.568	0.0695	0.0350	0.734	0.734	0.734	7.87	13.6	1.67	0.839	0.134	0.134	0.134	1.44	2.49	0.304	0.153	632,288	4,974,228
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)		0.0306	0.0306	0.0306	0.328	0.568	0.0695	0.0350	0.734	0.734	0.734	7.87	13.6	1.67	0.839	0.134	0.134	0.134	1.44	2.49	0.304	0.153	632,168	4,974,191
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)		0.00191	0.00191	0.00191	0.0205	0.0355	0.00434	0.00219	0.0459	0.0459	0.0459	0.492	0.852	0.104	0.0525	0.00838	0.00838	0.00838	0.0898	0.156	0.0190	0.00957	632,238	4,974,130
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)		0.00191	0.00191	0.00191	0.0205	0.0355	0.00434	0.00219	0.0459	0.0459	0.0459	0.492	0.852	0.104	0.0525	0.00838	0.00838	0.00838	0.0898	0.156	0.0190	0.00957	632,008	4,974,026
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)		0.00191	0.00191	0.00191	0.0205	0.0355	0.00434	0.00219	0.0459	0.0459	0.0459	0.492	0.852	0.104	0.0525	0.00838	0.00838	0.00838	0.0898	0.156	0.0190	0.00957	632,038	4,973,751
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)		0.00383	0.00383	0.00383	0.0410	0.0710	0.00869	0.00437	0.0918	0.0918	0.0918	0.984	1.70	0.209	0.105	0.0168	0.0168	0.0168	0.180	0.311	0.0381	0.0191	631,889	4,973,472
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)		0.0153	0.0153	0.0153	0.164	0.284	0.0348	0.0175	0.367	0.367	0.367	3.93	6.82	0.834	0.420	0.0670	0.0670	0.0670	0.718	1.24	0.152	0.0766	631,848	4,973,398
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)		0.0230	0.0230	0.0230	0.246	0.426	0.0521	0.0262	0.551	0.551	0.551	5.90	10.2	1.25	0.630	0.101	0.101	0.101	1.08	1.87	0.228	0.115	632,060	4,973,664
PSL	Prill Silos Loading (2 x 100 ton)		4.00	1.40	0.212					4.00	1.40	0.212					0.0730	0.0256	0.00387					632,346	4,973,500
PSU	Prill Silos Unloading (2 x 100 ton)		4.00	1.40	0.212					4.00	1.40	0.212					0.0730	0.0256	0.00387					632,346	4,973,500
CS1L	Cement/Shotcrete Silo #1 Loading	Control efficiency included in emission factor	0.0792	0.0272	0.00400					0.0792	0.0272	0.00400					0.0297	0.0102	0.00150					632,095	4,974,272
CS1U	Cement/Shotcrete Silo #1 Unloading		0.0960	0.0560	0.00800					0.384	0.224	0.0320					0.144	0.0840	0.0120					632,095	4,974,272
CS2L	Cement/Shotcrete Silo #2 Loading	Control efficiency included in emission factor	0.0792	0.0272	0.00400					0.0792	0.0272	0.00400					0.0297	0.0102	0.00150					632,095	4,974,272
CS2U	Cement/Shotcrete Silo #2 Unloading		0.0960	0.0560	0.00800					0.384	0.224	0.0320					0.144	0.0840	0.0120					632,095	4,974,272
CAL	Aggregate Bin Loading		0.690	0.330	0.0500					16.6	7.92	1.20					1.73	0.825	0.125					632,095	4,974,272
CAU	Aggregate Bin Unloading		0.690	0.330	0.0500					16.6	7.92	1.20					1.73	0.825	0.125					632,095	4,974,272
CM	Central Mixer Loading	Control efficiency included in emission factor	0.368	0.110	0.0160					1.47	0.440	0.0640					0.552	0.165	0.0240					632,095	4,974,272
TG1	Mine Site Gasoline Tank #1								0.219							5.25							0.957		
TG2	Mine Site Gasoline Tank #2								0.219							5.25							0.957		
TD3	Mine Site Diesel Tank #3								0.00167							0.0400							0.00730		
TD4	Mine Site Diesel Tank #4								0.00167							0.0400							0.00730		
TD5	Mine Site Diesel Tank #5								0.00167							0.0400							0.00730		
TD6	Mine Site Diesel Tank #6								0.00167							0.0400							0.00730		
TD7	Mine Site Diesel Tank #7								0.00167							0.0400							0.00730		
TD8	Mine Site Diesel Tank #8								0.00167							0.0400							0.00730		

SOURCE DESCRIPTION		NAD 83 LOCATION		
Model	Source Description	reference	elev	reference
ID			m	
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	Outside Recreation building	2,114.0	Recreation building base
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	Outside Mill building	2,001.0	Mill building base
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	Outside Mill building	2,002.0	Mill building base
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	Outside Mill building	2,003.0	Mill building base
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	POX building corner	2,007.2	POX building base
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	Along Refinery building wall	1,970.3	Refinery building base
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	Near underground mine shaft	2,000.0	Mine shaft base
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	Near underground mine shaft	2,000.0	Mine shaft base
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	Mill building center	2,000.6	Mill building base
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	POX building center	2,007.2	POX building base
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	Refinery building center	1,970.3	Refinery building base
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	Admin building center	1,979.0	Admin building base
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	Mine Ops building center	1,988.5	Mine Ops building base
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	Truck Shop building center	1,991.8	Truck Shop building base
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	Warehouse building center	1,983.9	Warehouse building base
PSL	Prill Silos Loading (2 x 100 ton)	Prill Silo #1 center	2,010.0	Prill Silo #1 base
PSU	Prill Silos Unloading (2 x 100 ton)	Prill Silo #1 center	2,010.0	Prill Silo #1 base
CS1L	Cement/Shotcrete Silo #1 Loading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CS1U	Cement/Shotcrete Silo #1 Unloading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CS2L	Cement/Shotcrete Silo #2 Loading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CS2U	Cement/Shotcrete Silo #2 Unloading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CAL	Aggregate Bin Loading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CAU	Aggregate Bin Unloading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
CM	Central Mixer Loading	Aggregate stockpile center	1,992.0	Aggregate stockpile base
TG1	Mine Site Gasoline Tank #1			
TG2	Mine Site Gasoline Tank #2			
TD3	Mine Site Diesel Tank #3			
TD4	Mine Site Diesel Tank #4			
TD5	Mine Site Diesel Tank #5			
TD6	Mine Site Diesel Tank #6			
TD7	Mine Site Diesel Tank #7			
TD8	Mine Site Diesel Tank #8			

SOURCE DESCRIPTION		RELEASE PARAMETERS INPUT						
Model	Source Description	POINT	rel ht (ft)	temp (F)	flow (dscfm)	flow (acfm)	dia (ft)	reference
ID		VOLUME	rel ht (ft)	width (ft)	vert. ln (ft)	grnd ht (ft)	σz type	
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	POINT	7	1,100	1,894	10,328	1.5	Flow - EPA M19 (9% O2, 8% moist; 75% load); 7' high, 18-in dia; T - std diesel engine exhst
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	POINT	7	1,100	1,894	10,328	1.5	Flow - EPA M19 (9% O2, 8% moist); 7' high, 18-in dia; T - std diesel engine exhst
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	POINT	7	1,100	1,894	10,328	1.5	Flow - EPA M19 (9% O2, 8% moist); 7' high, 18-in dia; T - std diesel engine exhst
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	POINT	7	1,100	379	2,066	0.75	Flow - EPA M19 (9% O2, 8% moist); 7' high, 9-in dia; T - std diesel engine exhst
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	POINT	68	360	17	39	0.4	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 5-in dia; T - std propane boiler exhst
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	POINT	46	360	847	1,972	1.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 16-in dia; T - std propane boiler exhst
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	POINT	7	360	678	1,577	1.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 16-in dia; T - std propane boiler exhst
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	POINT	7	360	678	1,577	0.7	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 8-in dia; T - std propane boiler exhst
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	POINT	141	360	678	394	0.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 4-in dia; T - std propane boiler exhst - single stack param
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	POINT	68	360	42	99	0.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 4-in dia; T - std propane boiler exhst
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	POINT	46	360	42	99	0.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 4-in dia; T - std propane boiler exhst
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	POINT	21	360	42	99	0.3	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 4-in dia; T - std propane boiler exhst
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	POINT	41	360	85	99	0.7	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 8-in dia; T - std propane boiler exhst - single stack param
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	POINT	41	360	339	394	0.7	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 8-in dia; T - std propane boiler exhst - single stack param
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	POINT	41	360	508	394	0.7	Flow - EPA M19 (3% O2, 15% moist); 1' above bldg top; 8-in dia; T - std propane boiler exhst - single stack param
PSL	Prill Silos Loading (2 x 100 ton)	POINT	25.5	Ambient		700	0.5	Ht - 3' above silo top; dia & flow from (NDEP 2019)
PSU	Prill Silos Unloading (2 x 100 ton)	VOLUME	4.5	1	1	5	elev src w/ bldg	1' screw discharge; 1' drop to conveyor; 5' above grade
CS1L	Cement/Shotcrete Silo #1 Loading	POINT	43.7	Ambient	930	930	0.5	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CS1U	Cement/Shotcrete Silo #1 Unloading	VOLUME	5	72.2	10	10	srf src	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CS2L	Cement/Shotcrete Silo #2 Loading	POINT	43.7	Ambient	930	930	0.5	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CS2U	Cement/Shotcrete Silo #2 Unloading	VOLUME	5	72.2	10	10	srf src	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CAL	Aggregate Bin Loading	VOLUME	5	72.2	10	10	srf src	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CAU	Aggregate Bin Unloading	VOLUME	5	72.2	10	10	srf src	Ht - 3' above silo top; dia & flow from (NDEP 2019)
CM	Central Mixer Loading	VOLUME	5	72.2	10	10	srf src	Ht - 3' above silo top; dia & flow from (NDEP 2019)
TG1	Mine Site Gasoline Tank #1							
TG2	Mine Site Gasoline Tank #2							
TD3	Mine Site Diesel Tank #3							
TD4	Mine Site Diesel Tank #4							
TD5	Mine Site Diesel Tank #5							
TD6	Mine Site Diesel Tank #6							
TD7	Mine Site Diesel Tank #7							
TD8	Mine Site Diesel Tank #8							

SOURCE DESCRIPTION		MODEL EMISSION RATES / RELEASE PARAMETERS														IDAPA 58.01.01.701 PM Weight Limit			
Model	Source Description	PM_{10}-24	$PM_{2.5}$-24	CO-ALL	NO_2-1	SO_2-1	SO_2-3	PM_{10}-AN	$PM_{2.5}$-AN	NO_2-AN	SO_2-AN	ht (m)	temp (K)	vel (m/s)	dia (m)	Process Weight	Allowable PM	Proposed PM	Compliance
ID		gps	gps	gps	gps	gps	gps	gps	gps	gps	gps	ht (m)	σy (m)	σz (m)		lb/hr	lb/hr	lb/hr	Demonstration
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	2.31E-03	2.31E-3	9.72E-1	2.03E-2	1.82E-3	1.82E-3	6.34E-4	6.34E-4	2.03E-2	2.08E-5	2.1	866.48	29.7	0.457	-	-	0.441	N/A
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	2.31E-03	2.31E-3	9.72E-1	2.03E-2	1.82E-3	1.82E-3	6.34E-4	6.34E-4	2.03E-2	2.08E-5	2.1	866.48	29.7	0.457	-	-	0.441	N/A
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	2.31E-03	2.31E-3	9.72E-1	2.03E-2	1.82E-3	1.82E-3	6.34E-4	6.34E-4	2.03E-2	2.08E-5	2.1	866.48	29.7	0.457	-	-	0.441	N/A
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	4.63E-04	4.63E-4	1.94E-1	2.54E-3	3.65E-4	3.65E-4	1.27E-4	1.27E-4	2.54E-3	4.16E-6	2.1	866.48	23.8	0.229	-	-	0.0882	N/A
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	9.64E-05	9.64E-5	1.03E-3	1.79E-3	2.19E-4	2.19E-4	9.64E-5	9.64E-5	1.79E-3	2.19E-4	20.7	455.37	1.6	0.122	-	-	7.65E-4	N/A
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	4.82E-03	4.82E-3	5.16E-2	8.95E-2	1.09E-2	1.09E-2	4.82E-3	4.82E-3	8.95E-2	1.09E-2	14.0	455.37	7.5	0.396	-	-	0.0383	N/A
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	3.86E-03	3.86E-3	4.13E-2	7.16E-2	8.76E-3	8.76E-3	3.86E-3	3.86E-3	7.16E-2	8.76E-3	2.1	455.37	6.0	0.396	-	-	0.0306	N/A
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	3.86E-03	3.86E-3	4.13E-2	7.16E-2	8.76E-3	8.76E-3	3.86E-3	3.86E-3	7.16E-2	8.76E-3	2.1	455.37	20.8	0.213	-	-	0.0306	N/A
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	3.86E-03	3.86E-3	4.13E-2	7.16E-2	8.76E-3	8.76E-3	3.86E-3	3.86E-3	7.16E-2	8.76E-3	43.0	455.37	28.3	0.091	-	-	0.0306	N/A
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	2.41E-04	2.41E-4	2.58E-3	4.48E-3	5.47E-4	5.47E-4	2.41E-4	2.41E-4	4.48E-3	5.47E-4	20.7	455.37	7.1	0.091	-	-	0.00191	N/A
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	2.41E-04	2.41E-4	2.58E-3	4.48E-3	5.47E-4	5.47E-4	2.41E-4	2.41E-4	4.48E-3	5.47E-4	14.0	455.37	7.1	0.091	-	-	0.00191	N/A
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	2.41E-04	2.41E-4	2.58E-3	4.48E-3	5.47E-4	5.47E-4	2.41E-4	2.41E-4	4.48E-3	5.47E-4	6.4	455.37	7.1	0.091	-	-	0.00191	N/A
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	4.82E-04	4.82E-4	5.16E-3	8.95E-3	1.09E-3	1.09E-3	4.82E-4	4.82E-4	8.95E-3	1.09E-3	12.5	455.37	1.3	0.213	-	-	0.00383	N/A
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	1.93E-03	1.93E-3	2.07E-2	3.58E-2	4.38E-3	4.38E-3	1.93E-3	1.93E-3	3.58E-2	4.38E-3	12.5	455.37	5.2	0.213	-	-	0.0153	N/A
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	2.89E-03	2.89E-3	3.10E-2	5.37E-2	6.57E-3	6.57E-3	2.89E-3	2.89E-3	5.37E-2	6.57E-3	12.5	455.37	5.2	0.213	-	-	0.0230	N/A
PSL	Prill Silos Loading (2 x 100 ton)	7.35E-03	1.11E-3					7.35E-4	1.11E-4			7.8	0.00	18.1	0.152	400,000	27.66	4.00	In Compliance
PSU	Prill Silos Unloading (2 x 100 ton)	7.35E-03	1.11E-3					7.35E-4	1.11E-4			1.4	0.07	0.1		400,000	27.66	4.00	In Compliance
CS1L	Cement/Shotcrete Silo #1 Loading	1.43E-04	2.10E-5					2.93E-4	4.32E-5			13.3	0.00	24.1	0.152	160,000	22.00	0.0792	In Compliance
CS1U	Cement/Shotcrete Silo #1 Unloading	1.18E-03	1.68E-4					2.42E-3	3.45E-4			1.5	5.12	1.4		40,000	15.56	0.0960	In Compliance
CS2L	Cement/Shotcrete Silo #2 Loading	1.43E-04	2.10E-5					2.93E-4	4.32E-5			13.3	0.00	24.1	0.152	160,000	22.00	0.0792	In Compliance
CS2U	Cement/Shotcrete Silo #2 Unloading	1.18E-03	1.68E-4					2.42E-3	3.45E-4			1.5	5.12	1.4		40,000	15.56	0.0960	In Compliance
CAL	Aggregate Bin Loading	4.16E-02	6.30E-3					2.37E-2	3.60E-3			1.5	5.12	1.4		200,000	23.26	0.690	In Compliance
CAU	Aggregate Bin Unloading	4.16E-02	6.30E-3					2.37E-2	3.60E-3			1.5	5.12	1.4		200,000	23.26	0.690	In Compliance
CM	Central Mixer Loading	2.31E-03	3.36E-4					4.75E-3	6.90E-4			1.5	5.12	1.4		-	-	0.368	N/A
TG1	Mine Site Gasoline Tank #1															-	-	-	N/A
TG2	Mine Site Gasoline Tank #2															-	-	-	N/A
TD3	Mine Site Diesel Tank #3															-	-	-	N/A
TD4	Mine Site Diesel Tank #4															-	-	-	N/A
TD5	Mine Site Diesel Tank #5															-	-	-	N/A
TD6	Mine Site Diesel Tank #6															-	-	-	N/A
TD7	Mine Site Diesel Tank #7															-	-	-	N/A
TD8	Mine Site Diesel Tank #8															-	-	-	N/A

SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS									EMISSION CON	
Model	Source Description	Design Throughput						Throughput reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference	control	efficiency
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr											system	
TD9	Mine Site Diesel Tank #9			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
TD10	Mine Site Diesel Tank #10			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d	None	NA
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	83	2,000	730,000	ton	Aggregate	8,760	(Midas Gold 2019c)	0.0075	0.00279	0.00037					lb/ton	AP-42, Table 11.19.2-2 (08/04): Tert. Crushing - ctrl. × 2 + Screening - ctrl. × 2 + Conv. Transfer - ctrl. × 5	Water Sprays/Moisture Carry-Over	
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	83	2,000	730,000	ton	Aggregate	8,760	(Midas Gold 2019c)	0.0075	0.00279	0.00037					lb/ton	AP-42, Table 11.19.2-2 (08/04): Tert. Crushing - ctrl. × 2 + Screening - ctrl. × 2 + Conv. Transfer - ctrl. × 5	Water Sprays/Moisture Carry-Over	
TRUE	LIME PRODUCTION																		
LS1	Limestone transfer to Primary Crusher Hopper	47.08	1,130	317,907	ton	Limestone	8,760	(Midas Gold 2018d)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS2	Primary Crushing and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS3	Primary Screening and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS4	Secondary Crushing and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS5	Secondary Screening and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS6	Limestone transfer to Ball Mill Feed Bin	47.08	1,130	317,907	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS7	Limestone transfer to Ball Mill Feed Conveyor	47.08	1,130	317,907	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS8	Ball Mill Feed transfer to Ball Mill	47.08	1,130	317,907	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LSBM	Limestone Ball Mill	47.08	1,130	317,907	ton	Limestone	8,760		0.0404	0.0339	0.0121					lb/ton	AP-42, Table 11.19.2-4 (08/04) Dry Grind. with Fabric Filter	Baghouse (BH3)	NA
LS9	Limestone transfer to Kiln Feed Bin	11.13	267	82,688	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS10	Limestone transfer to Lime Kiln Feed Conveyor	11.13	267	82,688	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS11	Fines Screening and Associated Transfers In and Out	11.13	267	82,688	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4	None	0
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	11.13	267	82,688	ton	Limestone	8,760	(Midas Gold 2018d)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4	None	0
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	7.04	169	52,377	ton	Lime	8,760	(Midas Gold 2018d)	0.13	0.13	0.13	0.45	0.24	0.0012		lb/ton	AP-42 Tables 11.17-2, 6 : Gas-Fired Parallel Flow Regenetive Kiln with Fabric Filter (PM = 5x EF)	Baghouse (BH4)	NA
LKC	PFR Shaft Lime Kiln Combustion	22.04	529	163,935	MMBtu	Propane	8,760	Based on 870 kcal/kg (Maerz 2018)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal	None	0
LCR	Lime Mill Crushing and associated transfers In and Out	7.04	169	52,377	ton	Lime	8,760		0.0404	0.0339	0.0121					lb/ton	AP-42, Table 11.19.2-4 (08/04) Dry Grind. with Fabric Filter	Baghouse (BH5)	NA
LSL	Pebble Lime Silo Loading via Bucket Elevator	7.04	169	52,377	ton	Lime	8,760		0.00088	0.00088	0.00088					lb/ton	AP-42 Table 11.17-4: Crushed Material Conveyor Transfer with Fabric Filter (PM = 10 x EF)	Bin Vent Filter	NA
LSU	Pebble Lime Silo discharge to Lime Slaker	7.04	169	52,377	ton	Lime	8,760		8.8E-05	8.8E-05	8.8E-05					lb/ton	AP-42 Table 11.17-4: Crushed Material Conveyor Transfer with Fabric Filter	Wet Scrubber (WS3)	NA
Total																			

SOURCE DESCRIPTION		TROLS	HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS								
Model	Source Description	reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	UTM E	UTM N
ID			lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	m	m
TD9	Mine Site Diesel Tank #9								0.00167							0.0400							0.00730		
TD10	Mine Site Diesel Tank #10								0.00167							0.0400							0.00730		
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	Control efficiency included in emission factor	0.63	0.233	0.030					15.0	5.6	0.73					2.74	1.02	0.133					632,348	4,973,429
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	Control efficiency included in emission factor	0.625	0.2325	0.0304					15.00	5.58	0.730					2.738	1.018	0.1332					632,348	4,973,369
TRUE	LIME PRODUCTION																								
LS1	Limestone transfer to Primary Crusher Hopper		0.141	0.0518	0.0080					3.39	1.24	0.192	0	0	0	0	0.477	0.175	0.0270					632,239	4,974,256
LS2	Primary Crushing and Associated Transfers In and Out		0.254	0.113	0.0169					6.10	2.71	0.407	0	0	0	0	0.86	0.381	0.057					632,239	4,974,256
LS3	Primary Screening and Associated Transfers In and Out		1.18	0.410	0.0621					28.2	9.8	1.49	0	0	0	0	3.97	1.38	0.210					632,239	4,974,256
LS4	Secondary Crushing and Associated Transfers In and Out		0.254	0.113	0.0169					6.10	2.71	0.407	0	0	0	0	0.86	0.381	0.057					632,227	4,974,268
LS5	Secondary Screening and Associated Transfers In and Out		1.18	0.410	0.0621					28.2	9.8	1.49	0	0	0	0	3.97	1.38	0.210					632,227	4,974,268
LS6	Limestone transfer to Ball Mill Feed Bin		0.141	0.0518	0.0080					3.39	1.24	0.192	0	0	0	0	0.477	0.175	0.0270					632,181	4,974,307
LS7	Limestone transfer to Ball Mill Feed Conveyor		0.141	0.0518	0.00800					3.39	1.243	0.192	0	0	0	0	0.477	0.175	0.0270					632,181	4,974,307
LS8	Ball Mill Feed transfer to Ball Mill		0.141	0.0518	0.00800					3.39	1.243	0.192	0	0	0	0	0.477	0.175	0.0270					632,200	4,974,273
LSBM	Limestone Ball Mill	Control efficiency included in emission factor	1.902	1.5959	0.56964					45.65	38.303	13.671	0	0	0	0	6.422	5.389	1.9233					632,215	4,974,248
LS9	Limestone transfer to Kiln Feed Bin		0.033	0.0122	0.0019					0.80	0.29	0.045	0	0	0	0	0.124	0.045	0.0070					632,169	4,974,325
LS10	Limestone transfer to Lime Kiln Feed Conveyor		0.033	0.0122	0.00189					0.80	0.294	0.045	0	0	0	0	0.124	0.045	0.0070					632,169	4,974,325
LS11	Fines Screening and Associated Transfers In and Out		0.28	0.097	0.0147					6.7	2.3	0.35	0	0	0	0	1.03	0.36	0.055					632,151	4,974,314
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln		0.033	0.0122	0.00189					0.80	0.294	0.045	0	0	0	0	0.124	0.045	0.0070					632,056	4,974,285
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	Control efficiency included in emission factor	0.915	0.915	0.915	3.17	1.69	0.0085		21.97	21.97	21.97	76.05	40.6	0.203	0.00	3.40	3.40	3.40	11.8	6.29	0.0314		632,057	4,974,265
LKC	PFR Shaft Lime Kiln Combustion		0.169	0.169	0.169	1.81	3.13	0.383	0.193	4.05	4.05	4.05	43.4	75.2	9.2	4.62	0.627	0.627	0.627	6.72	11.6	1.42	0.72	632,057	4,974,265
LCR	Lime Mill Crushing and associated transfers In and Out	Control efficiency included in emission factor	0.28448	0.23871	0.08520					6.828	5.729	2.045	0	0	0	0	1.0580	0.8878	0.3169					632,073	4,974,233
LSL	Pebble Lime Silo Loading via Bucket Elevator	Control efficiency included in emission factor	6.20E-3	6.20E-3	6.20E-3					0.1487	0.1487	0.1487	0	0	0	0	0.02305	0.02305	0.02305					632,069	4,974,206
LSU	Pebble Lime Silo discharge to Lime Slaker	Control efficiency included in emission factor	6.20E-4	6.20E-4	6.20E-4					0.0149	0.0149	0.0149	0	0	0	0	0.00230	0.00230	0.00230					632,069	4,974,206
Total			**35.8**	**21.7**	**13.4**	**33.5**	**55.4**	**1.88**	**11.5**	**578**	**376**	**241**	**204**	**259**	**37.2**	**34.5**	**87.3**	**56.3**	**36.4**	**30.5**	**37.9**	**6.48**	**4.78**		

SOURCE DESCRIPTION		NAD 83 LOCATION		
Model	Source Description	reference	elev	reference
ID			m	
TD9	Mine Site Diesel Tank #9			
TD10	Mine Site Diesel Tank #10			
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	30 m north of access road start point	2,009.0	Google Earth
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	30 m south of access road start point	2,007.0	Google Earth
TRUE	LIME PRODUCTION			
LS1	Limestone transfer to Primary Crusher Hopper	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS2	Primary Crushing and Associated Transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS3	Primary Screening and Associated Transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS4	Secondary Crushing and Associated Transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS5	Secondary Screening and Associated Transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS6	Limestone transfer to Ball Mill Feed Bin	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS7	Limestone transfer to Ball Mill Feed Conveyor	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS8	Ball Mill Feed transfer to Ball Mill	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LSBM	Limestone Ball Mill	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS9	Limestone transfer to Kiln Feed Bin	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS10	Limestone transfer to Lime Kiln Feed Conveyor	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS11	Fines Screening and Associated Transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	Drawing SK-OPTION 3b, 06/06/2018	1,984.0	Google Earth
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	Drawing SK-OPTION 3b, 06/06/2018	1,984.0	Google Earth
LKC	PFR Shaft Lime Kiln Combustion	Drawing SK-OPTION 3b, 06/06/2018	1,984.0	Google Earth
LCR	Lime Mill Crushing and associated transfers In and Out	Drawing SK-OPTION 3b, 06/06/2018	1,990.0	Google Earth
LSL	Pebble Lime Silo Loading via Bucket Elevator	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
LSU	Pebble Lime Silo discharge to Lime Slaker	Drawing SK-OPTION 3b, 06/06/2018	1,996.0	Google Earth
Total				

SOURCE DESCRIPTION		RELEASE PARAMETERS INPUT						
Model	Source Description	POINT	rel ht (ft)	temp (F)	flow (dscfm)	flow (acfm)	dia (ft)	reference
ID		VOLUME	rel ht (ft)	width (ft)	vert. ln (ft)	grnd ht (ft)	σz type	
TD9	Mine Site Diesel Tank #9							
TD10	Mine Site Diesel Tank #10							
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	VOLUME	7.0	185.2	14	14	srf src	Typical portable crushing and screening plant parameters
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	VOLUME	7.0	185.2	14.0	14.0	srf src	Typical portable crushing and screening plant parameters
TRUE	LIME PRODUCTION							
LS1	Limestone transfer to Primary Crusher Hopper	VOLUME	11.3	22.6	22.6	22.6	srf src	PC width. Height equal to width.
LS2	Primary Crushing and Associated Transfers In and Out	VOLUME	11.3	22.6	22.6	22.6	srf src	PC width. Height equal to width.
LS3	Primary Screening and Associated Transfers In and Out	VOLUME	11.3	22.6	22.6	22.6	srf src	PC width. Height equal to width.
LS4	Secondary Crushing and Associated Transfers In and Out	VOLUME	11.3	22.6	22.6	22.6	srf src	PC width. Height equal to width.
LS5	Secondary Screening and Associated Transfers In and Out	VOLUME	11.3	22.6	22.6	22.6	srf src	PC width. Height equal to width.
LS6	Limestone transfer to Ball Mill Feed Bin	POINT	29.0	Ambient		0.155	1.0	Ht - 3' above silo top; dia - 1'; vel - 0.001 m/s for horz
LS7	Limestone transfer to Ball Mill Feed Conveyor	VOLUME	3.5	1	3	5	elev src w/ bldg	1' screw discharge; 3' drop to conveyor; 5' above grade
LS8	Ball Mill Feed transfer to Ball Mill	VOLUME	28	4	4	30	elev src w/ bldg	4' x 4' opening at mid Ball Mill building height
LSBM	Limestone Ball Mill	POINT	70.0	Ambient	13,000	16,500	2.0	Ht - 10' above bldg top; Flow & Temp. - (NDEP 2010)
LS9	Limestone transfer to Kiln Feed Bin	POINT	29.0	Ambient		0.155	1.0	Ht - 3' above silo top; dia - 1'; vel - 0.001 m/s for horz
LS10	Limestone transfer to Lime Kiln Feed Conveyor	VOLUME	3.5	1	3	5	elev src w/ bldg	1' screw discharge; 3' drop to conveyor; 5' above grade
LS11	Fines Screening and Associated Transfers In and Out	VOLUME	2.5	8	5	5	srf src	8' wide screen; 5' drop; 5' above grade
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	VOLUME	68	4	4	70	elev src w/ bldg	4' x 4' opening at mid Kiln building height
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	POINT	150	350	8,000	16,300	2.0	Ht - 10' above bldg top; typical industry exhaust param
LKC	PFR Shaft Lime Kiln Combustion	POINT	150	350	8,000	16,300	2.0	Common stack with LK
LCR	Lime Mill Crushing and associated transfers In and Out	POINT	50	Ambient	2,000	2,500	0.75	Ht - 10' above bldg top; typical industry exhaust param
LSL	Pebble Lime Silo Loading via Bucket Elevator	POINT	29.0	Ambient	70	70	0.333	Ht - 3' above silo top; dia & flow from (NDEP 2019)
LSU	Pebble Lime Silo discharge to Lime Slaker	VOLUME	3.5	1	3	5	elev src w/ bldg	1' screw discharge; 3' drop to conveyor; 5' above grade
Total								

SOURCE DESCRIPTION		MODEL EMISSION RATES / RELEASE PARAMETERS														IDAPA 58.01.01.701 PM Weight Limit			
Model	Source Description	PM_{10}-24	$PM_{2.5}$-24	CO-ALL	NO_2-1	SO_2-1	SO_2-3	PM_{10}-AN	$PM_{2.5}$-AN	NO_2-AN	SO_2-AN	ht (m)	temp (K)	vel (m/s)	dia (m)	Process Weight	Allowable PM	Proposed PM	Compliance
ID		gps	gps	gps	gps	gps	gps	gps	gps	gps	gps	ht (m)	σy (m)	σz (m)		lb/hr	lb/hr	lb/hr	Demonstration
TD9	Mine Site Diesel Tank #9															-	-	-	N/A
TD10	Mine Site Diesel Tank #10															-	-	-	N/A
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	2.93E-02	3.83E-3					2.93E-2	3.83E-3			2.1	13.13	2.0		166,667	22.23	0.63	In Compliance
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	2.93E-02	3.83E-3					2.93E-2	3.83E-3			2.1	13.13	2.0		166,667	22.23	0.625	In Compliance
TRUE	LIME PRODUCTION																		
LS1	Limestone transfer to Primary Crusher Hopper	6.52E-03	1.01E-3					5.03E-3	7.77E-4			3.4	1.60	3.2		94,156	19.27	0.141	In Compliance
LS2	Primary Crushing and Associated Transfers In and Out	1.42E-02	2.14E-3					1.10E-2	1.65E-3			3.4	1.60	3.2		94,156	19.27	0.254	In Compliance
LS3	Primary Screening and Associated Transfers In and Out	5.16E-02	7.83E-3					3.98E-2	6.04E-3			3.4	1.60	3.2		94,156	19.27	1.18	In Compliance
LS4	Secondary Crushing and Associated Transfers In and Out	1.42E-02	2.14E-3					1.10E-2	1.65E-3			3.4	1.60	3.2		94,156	19.27	0.254	In Compliance
LS5	Secondary Screening and Associated Transfers In and Out	5.16E-02	7.83E-3					3.98E-2	6.04E-3			3.4	1.60	3.2		94,156	19.27	1.18	In Compliance
LS6	Limestone transfer to Ball Mill Feed Bin	6.52E-03	1.01E-3					5.03E-3	7.77E-4			8.8	0.00	0.0	0.305	94,156	19.27	0.141	In Compliance
LS7	Limestone transfer to Ball Mill Feed Conveyor	6.52E-03	1.01E-3					5.03E-3	7.77E-4			1.1	0.07	0.4		94,156	19.27	0.141	In Compliance
LS8	Ball Mill Feed transfer to Ball Mill	6.52E-03	1.01E-3					5.03E-3	7.77E-4			8.5	0.28	0.6		94,156	19.27	0.141	In Compliance
LSBM	Limestone Ball Mill	2.01E-01	7.18E-2					1.55E-1	5.53E-2			21.3	0.00	26.7	0.610	94,156	19.27	1.902	In Compliance
LS9	Limestone transfer to Kiln Feed Bin	1.54E-03	2.38E-4					1.31E-3	2.02E-4			8.8	0.00	0.0	0.305	22,250	13.43	0.033	In Compliance
LS10	Limestone transfer to Lime Kiln Feed Conveyor	1.54E-03	2.38E-4					1.31E-3	2.02E-4			1.1	0.07	0.4		22,250	13.43	0.033	In Compliance
LS11	Fines Screening and Associated Transfers In and Out	1.22E-02	1.85E-3					1.03E-2	1.57E-3			0.8	0.57	0.7		22,250	13.43	0.28	In Compliance
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	1.54E-03	2.38E-4					1.31E-3	2.02E-4			20.7	0.28	0.6		22,250	13.43	0.033	In Compliance
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	1.15E-01	1.15E-1	3.99E-1	2.13E-1	1.06E-3	1.06E-3	9.79E-2	9.79E-2	1.81E-1	9.04E-4	45.7	449.82	26.4	0.610	14,083	11.98	0.915	In Compliance
LKC	PFR Shaft Lime Kiln Combustion	2.12E-02	2.12E-2	2.28E-1	3.95E-1	4.83E-2	4.83E-2	1.80E-2	1.80E-2	3.35E-1	4.10E-2	45.7	449.82	26.4	0.610	-	-	0.169	N/A
LCR	Lime Mill Crushing and associated transfers In and Out	3.01E-02	1.07E-2					2.55E-2	9.12E-3			15.2	0.00	28.7	0.229	14,083	11.98	0.28448	In Compliance
LSL	Pebble Lime Silo Loading via Bucket Elevator	7.81E-04	7.81E-4					6.63E-4	6.63E-4			8.8	0.00	4.1	0.102	14,083	11.98	6.20E-3	In Compliance
LSU	Pebble Lime Silo discharge to Lime Slaker	7.81E-05	7.81E-5					6.63E-5	6.63E-5			1.1	0.07	0.4		14,083	11.98	6.20E-4	In Compliance
Total		1.97	1.26	4.22	1.48	0.237	0.237	1.62	1.046	1.09	0.186								

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: S. Pryor/E. Memon		
	PROJECT NO: 335-1-4	PAGE: 1	OF: 10	SHEET: ProcHAP
AIR EMISSION CALCULATIONS	SUBJECT: Process HAP and GHG Emissions	DATE: June 22, 2020		

prop-lb/hr prop-ton/yr dies-lb/hr dies-ton/yr mpro-lb/hr mpro-ton/yr total-lb/hr total-lb/yr total-ton/yr

Hazardous Air Pollutants (HAP)/Toxic Air Pollutants (TAP) Emissions Summary

		Emissions										
		Propane Combustion		Diesel Combustion		Material Processing		Total[1]				
CAS	HAP/TAP	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	lb/yr	ton/yr	HAP	TAP
106-99-0	1,3-Butadiene	--	--	7.34E-5	3.67E-6	--	--	7.34E-5	7.34E-3	3.67E-6	Y	Y
91-57-6	2-Methylnaphthalene	1.59E-6	4.85E-6	--	--	--	--	1.59E-6	9.71E-3	4.85E-6	Y	N
56-49-5	3-Methylchloranthrene	1.19E-7	3.64E-7	--	--	--	--	1.19E-7	7.28E-4	3.64E-7	Y	Y
57-97-6	7,12-Dimethylbenz(a)anthracene	1.06E-6	3.24E-6	--	--	--	--	1.06E-6	6.47E-3	3.24E-6	Y	N
83-32-9	Acenaphthene	1.19E-7	3.64E-7	1.34E-4	6.72E-6	--	--	1.35E-4	1.42E-2	7.09E-6	Y	N
208-96-8	Acenaphthylene	1.19E-7	3.64E-7	2.69E-4	1.35E-5	--	--	2.70E-4	2.77E-2	1.38E-5	Y	N
75-07-0	Acetaldehyde	--	--	2.15E-3	1.07E-4	--	--	2.15E-3	2.15E-1	1.07E-4	Y	Y
107-02-8	Acrolein	--	--	3.96E-4	1.98E-5	--	--	3.96E-4	3.96E-2	1.98E-5	Y	Y
120-12-7	Anthracene	1.59E-7	4.85E-7	3.81E-5	1.91E-6	--	--	3.83E-5	4.79E-3	2.39E-6	Y	N
7440-36-0	Antimony	--	--	--	--	6.86E-2	3.00E-1	6.86E-2	6.01E+2	3.00E-1	Y	Y
7440-38-2	Arsenic	1.32E-5	4.04E-5	--	--	4.36E-3	1.75E-2	4.37E-3	3.52E+1	1.76E-2	Y	Y
56-55-3	Benz(a)anthracene	1.19E-7	3.64E-7	2.07E-5	1.03E-6	--	--	2.08E-5	2.80E-3	1.40E-6	Y	N
71-43-2	Benzene	1.39E-4	4.25E-4	2.36E-2	1.18E-3	--	--	2.37E-2	3.21E+0	1.60E-3	Y	Y
50-32-8	Benzo(a)pyrene	7.93E-8	2.43E-7	7.59E-6	3.80E-7	--	--	7.67E-6	1.24E-3	6.22E-7	Y	Y
205-99-2	Benzo(b)fluoranthene	1.19E-7	3.64E-7	3.14E-5	1.57E-6	--	--	3.16E-5	3.87E-3	1.94E-6	Y	N
191-24-2	Benzo(g,h,i)perylene	7.93E-8	2.43E-7	1.66E-5	8.29E-7	--	--	1.67E-5	2.14E-3	1.07E-6	Y	N
207-08-9	Benzo(k)fluoranthene	1.19E-7	3.64E-7	6.43E-6	3.22E-7	--	--	6.55E-6	1.37E-3	6.86E-7	Y	N
7440-41-7	Beryllium	7.93E-7	2.43E-6	--	--	2.17E-5	8.35E-5	2.25E-5	1.72E-1	8.59E-5	Y	Y
7440-43-9	Cadmium	7.26E-5	2.22E-4	--	--	4.06E-5	2.73E-5	1.13E-4	4.99E-1	2.50E-4	Y	Y
75-15-0	Carbon disulfide	--	--	--	--	1.45E-2	6.33E-2	1.45E-2	1.27E+2	6.33E-2	Y	Y
7440-47-3	Chromium	9.25E-5	2.83E-4	--	--	1.22E-4	2.90E-4	2.14E-4	1.15E+0	5.73E-4	Y	Y
218-01-9	Chrysene	1.19E-7	3.64E-7	4.37E-5	2.19E-6	--	--	4.39E-5	5.10E-3	2.55E-6	Y	N
7440-48-4	Cobalt	5.55E-6	1.70E-5	--	--	2.35E-5	1.03E-4	2.91E-5	2.40E-1	1.20E-4	Y	Y
592-01-8	Cyanide	--	--	--	--	2.22E-1	9.73E-1	2.22E-1	1.95E+3	**9.73E-1**	Y	Y
53-70-3	Dibenz(a,h)anthracene	7.93E-8	2.43E-7	1.08E-5	5.42E-7	--	--	1.09E-5	1.57E-3	7.85E-7	Y	N
106-46-7	Dichlorobenzene	7.93E-5	2.43E-4	--	--	--	--	7.93E-5	4.85E-1	2.43E-4	Y	Y
206-44-0	Fluoranthene	1.98E-7	6.07E-7	1.28E-4	6.39E-6	--	--	1.28E-4	1.40E-2	7.00E-6	Y	N
86-73-7	Fluorene	1.85E-7	5.66E-7	4.15E-4	2.08E-5	--	--	4.15E-4	4.27E-2	2.13E-5	Y	N
50-00-0	Formaldehyde	4.95E-3	1.52E-2	4.44E-3	2.22E-4	--	--	9.39E-3	3.08E+1	1.54E-2	Y	Y
110-54-3	Hexane	1.19E-1	3.64E-1	--	--	--	--	1.19E-1	7.28E+2	3.64E-1	Y	Y
193-39-5	Indeno(1,2,3-cd)pyrene	1.19E-7	3.64E-7	1.24E-5	6.18E-7	--	--	1.25E-5	1.96E-3	9.82E-7	Y	N
7439-92-1	Lead	--	--	--	--	1.72E-4	2.62E-4	1.72E-4	5.23E-1	2.62E-4	Y	N
7439-96-5	Manganese	2.51E-5	7.69E-5	--	--	3.53E-2	2.17E-2	3.53E-2	4.35E+1	2.17E-2	Y	Y
7439-97-6	Mercury	1.72E-5	5.26E-5	--	--	5.13E-3	1.24E-2	5.15E-3	2.49E+1	1.24E-2	Y	N
91-20-3	Naphthalene	4.03E-5	1.23E-4	3.82E-3	1.91E-4	--	--	3.86E-3	6.29E-1	3.14E-4	Y	Y
7440-02-0	Nickel	1.39E-4	4.25E-4	--	--	2.89E-3	1.21E-3	3.03E-3	3.26E+0	1.63E-3	Y	Y
85-01-8	Phenanthrene	1.12E-6	3.44E-6	1.20E-3	6.02E-5	--	--	1.21E-3	1.27E-1	6.36E-5	Y	N
7723-14-0	Phosphorus	--	--	--	--	6.12E-3	1.81E-2	6.12E-3	3.61E+1	1.81E-2	Y	Y
129-00-0	Pyrene	3.30E-7	1.01E-6	1.13E-4	5.67E-6	--	--	1.14E-4	1.34E-2	6.68E-6	Y	N
7782-49-2	Selenium	1.59E-6	4.85E-6	--	--	--	--	1.59E-6	9.71E-3	4.85E-6	Y	Y
108-88-3	Toluene	2.25E-4	6.88E-4	8.68E-3	4.34E-4	--	--	8.91E-3	2.24E+0	1.12E-3	Y	Y
1330-20-7	Xylene	--	--	5.97E-3	2.99E-4	--	--	5.97E-3	5.97E-1	2.99E-4	Y	Y
Total HAP		1.25E-1	3.82E-1	5.16E-2	2.58E-3	3.59E-1	1.41E+0	5.36E-1	3.59E+3	1.79E+0		

[1] *Includes autoclave and refinery source mercury emissions provided on page 10.*

TRUE

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: S. Pryor/E. Memon	
	PROJECT NO: 335-1-4	PAGE: 2 OF: 10	SHEET: ProcHAP
AIR EMISSION CALCULATIONS	SUBJECT: Process HAP and GHG Emissions	DATE: June 22, 2020	

prop-lb/hr prop-ton/yr dies-lb/hr dies-ton/yr mpro-lb/hr mpro-ton/yr total-lb/hr total-lb/yr total-ton/yr

Hazardous Air Pollutants (HAP)/Toxic Air Pollutants (TAP) Emissions Summary - continue

		Emissions										
		Propane Combustion		Diesel Combustion		Material Processing [1]		Total				
CAS	Non-HAP TAP	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	lb/yr	ton/yr	HAP	TAP
7440-39-3	Barium	2.91E-4	8.90E-4	--	--	4.71E-3	2.06E-2	5.00E-3	4.30E+1	2.15E-2	N	Y
7440-50-8	Copper	5.61E-5	1.72E-4	--	--	2.94E-5	1.29E-4	8.55E-5	6.01E-1	3.01E-4	N	Y
7783-06-4	Hydrogen Sulfide	--	--	--	--	0.900	3.942	0.900	7,884	3.942	N	Y
7439-98-7	Molybdenum	7.26E-5	2.22E-4	--	--	5.88E-6	2.58E-5	7.85E-5	4.96E-1	2.48E-4	N	Y
109-66-0	Pentane	1.72E-1	5.26E-1	--	--	--	--	1.72E-1	1.05E+3	5.26E-1	N	Y
7440-22-4	Silver	--	--	--	--	2.94E-6	1.29E-5	2.94E-6	2.58E-2	1.29E-5	N	Y
7664-93-9	Sulfuric Acid	--	--	--	--	2.030	8.891	2.030	17,783	8.891	N	Y
7440-28-0	Thallium	--	--	--	--	5.88E-5	2.58E-4	5.88E-5	5.15E-1	2.58E-4	N	Y
7440-61-1	Uranium	--	--	--	--	5.88E-5	2.58E-4	5.88E-5	5.15E-1	2.58E-4	N	Y
7440-62-2	Vanadium	1.52E-4	4.65E-4	--	--	--	--	1.52E-4	9.30E-1	4.65E-4	N	Y
7440-66-6	Zinc	1.92E-3	5.86E-3	--	--	--	--	1.92E-3	1.17E+1	5.86E-3	N	Y
Total Non-HAP TAP		1.74E-1	5.33E-1	--	--	2.93E+0	1.29E+1	3.11	26,776.27	13.39		

[1] *Material Processing includes Autoclave and Cement Handling and Mixing.*

GHG Emissions Summary

Source Category	CO2e *(ton/yr)*
Propane Combustion	28,708
Diesel Combustion	246
Autoclaving	47,316
Lime Kiln	30,311
Total GHGs	**106,580**

GHG and Emission Summary by Source

ID Description CO2e_tpy

Source ID	Description	CO2e ton/yr
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	1,658
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	35
CKB	Carbon Regeneration Kiln (Burners)	1,375
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	61
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	3,048
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	2,438
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	2,438
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	2,438
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	152
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	152
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	152
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	305
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	1,219
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	1,829
LKC	PFR Shaft Lime Kiln Combustion	11,407
EDG1	Camp Emergency Generator	77
EDG2	Plant Emergency Generator #1	77
EDG3	Plant Emergency Generator #2	77
EDFP	Mill Fire Pump	15
AC	Autoclave	47,316
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	30,311
Total		106,580

PROPANE COMBUSTION

GHG EMISSIONS

Propane GHG Emission Factors:

			Global Warming Potential*	Reference
CO2	62.87	*kg/MMBtu*	1	*40 CFR Part 98, Table C-1 to Subpart C (11/2013) Propane (CFR 2018c)*
CH4	3.0E-03	*kg/MMBtu*	25	*40 CFR Part 98, Table C-2 to Subpart C (11/2013) Petroleum (CFR 2018c)*
N2O	6.0E-04	*kg/MMBtu*	298	*40 CFR Part 98, Table C-2 to Subpart C (11/2013) Petroleum (CFR 2018c)*

** 40 CFR 98, Table A-1 (12/2014) (CFR 2018c)*

					CO2_tpy	CH4_tpy	N2O_tpy	CO2e_tpy
					CO2	CH4	N2O	CO2e
Source ID	**Description**	MMBtu/hr	hr/yr	MMBtu/yr	ton/yr	ton/yr	ton/yr	ton/yr
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.7	8,760	23,827	1,651	7.88E-2	1.58E-2	1,658
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	17.0	30	510	35	1.69E-3	3.37E-4	35
CKB	Carbon Regeneration Kiln (Burners)	2.3	8,760	19,754	1,369	6.53E-2	1.31E-2	1,375
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	0.1	8,760	876	61	2.90E-3	5.79E-4	61
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	5.0	8,760	43,800	3,035	1.45E-1	2.90E-2	3,048
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	4.0	8,760	35,040	2,428	1.16E-1	2.32E-2	2,438
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	4.0	8,760	35,040	2,428	1.16E-1	2.32E-2	2,438
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	4.0	8,760	35,040	2,428	1.16E-1	2.32E-2	2,438
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	0.3	8,760	2,190	152	7.24E-3	1.45E-3	152
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	0.3	8,760	2,190	152	7.24E-3	1.45E-3	152
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	0.3	8,760	2,190	152	7.24E-3	1.45E-3	152
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	0.5	8,760	4,380	304	1.45E-2	2.90E-3	305
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	2.0	8,760	17,520	1,214	5.79E-2	1.16E-2	1,219
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	3.0	8,760	26,280	1,821	8.69E-2	1.74E-2	1,829
LKC	PFR Shaft Lime Kiln Combustion	22.0	8,760	163,935	11,361	5.42E-1	1.08E-1	11,407
Total		67.4		412,572	28,592	1.36	0.27	28,708

**Propane heating value* 91,500 *Btu/gal*

Conversions

2,000	lb/ton	1.341	hp/kW
907.18582	kg/ton	1E+6	Btu/MMBtu

PROPANE COMBUSTION - CONTINUED

HAP/TAP Emissions - Propane Heaters

		Emission Factor*		Emissions	
CAS	**Pollutant**	lb/MMScf	lb/MMBtu*[1]	lb/hr	ton/yr
91-57-6	2-Methylnaphthalene	2.4E-05	2.35E-8	1.6E-6	4.9E-6
56-49-5	3-Methylchloranthrene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
57-97-6	7,12-Dimethylbenz(a)anthracene	< 1.6E-05	1.57E-8	1.1E-6	3.2E-6
83-32-9	Acenaphthene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
208-96-8	Acenaphthylene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
120-12-7	Anthracene	< 2.4E-06	2.35E-9	1.6E-7	4.9E-7
7440-38-2	Arsenic	2.0E-04	1.96E-7	1.3E-5	4.0E-5
56-55-3	Benz(a)anthracene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
71-43-2	Benzene	2.1E-03	2.06E-6	1.4E-4	4.2E-4
50-32-8	Benzo(a)pyrene	< 1.2E-06	1.18E-9	7.9E-8	2.4E-7
205-99-2	Benzo(b)fluoranthene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
191-24-2	Benzo(g,h,i)perylene	< 1.2E-06	1.18E-9	7.9E-8	2.4E-7
207-08-9	Benzo(k)fluoranthene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
7440-41-7	Beryllium	< 1.2E-05	1.18E-8	7.9E-7	2.4E-6
7440-43-9	Cadmium	1.1E-03	1.08E-6	7.3E-5	2.2E-4
7440-47-3	Chromium	1.4E-03	1.37E-6	9.2E-5	2.8E-4
218-01-9	Chrysene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
7440-48-4	Cobalt	8.4E-05	8.24E-8	5.5E-6	1.7E-5
53-70-3	Dibenz(a,h)anthracene	< 1.2E-06	1.18E-9	7.9E-8	2.4E-7
106-46-7	Dichlorobenzene	1.2E-03	1.18E-6	7.9E-5	2.4E-4
206-44-0	Fluoranthene	3.0E-06	2.94E-9	2.0E-7	6.1E-7
86-73-7	Fluorene	2.8E-06	2.75E-9	1.8E-7	5.7E-7
50-00-0	Formaldehyde	7.5E-02	7.35E-5	5.0E-3	1.5E-2
110-54-3	Hexane	1.8E+00	1.76E-3	0.12	0.36
193-39-5	Indeno(1,2,3-cd)pyrene	< 1.8E-06	1.76E-9	1.2E-7	3.6E-7
7439-96-5	Manganese	3.8E-04	3.73E-7	2.5E-5	7.7E-5
7439-97-6	Mercury	2.6E-04	2.55E-7	1.7E-5	5.3E-5
91-20-3	Naphthalene	6.1E-04	5.98E-7	4.0E-5	1.2E-4
7440-02-0	Nickel	2.1E-03	2.06E-6	1.4E-4	4.2E-4
85-01-8	Phenanthrene	1.7E-05	1.67E-8	1.1E-6	3.4E-6
129-00-0	Pyrene	5.0E-06	4.90E-9	3.3E-7	1.0E-6
7782-49-2	Selenium	< 2.4E-05	2.35E-8	1.6E-6	4.9E-6
108-88-3	Toluene	3.4E-03	3.33E-6	2.2E-4	6.9E-4
Total HAP				0.12	0.38
Non-HAP TAP Emissions - Propane Heaters					
109-66-0	Pentane	2.6E+00	2.55E-3	0.17	0.53
7440-39-3	Barium	4.4E-03	4.31E-6	2.9E-4	8.9E-4
7440-50-8	Copper	8.5E-04	8.33E-7	5.6E-5	1.7E-4
7439-98-7	Molybdenum	1.1E-03	1.08E-6	7.3E-5	2.2E-4
7440-62-2	Vanadium	2.3E-03	2.25E-6	1.5E-4	4.7E-4
7440-66-6	Zinc	2.9E-02	2.84E-5	1.9E-3	5.9E-3
Total Non-HAP TAP				0.17	0.53

**AP-42, Table 1.4-3 & 1.4-4 (7/98) Natural Gas Combustion*

***Natural Gas Higher Heating Value* 1,020 *MMBtu/MMScf*

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: S. Pryor/E. Memon
	PROJECT NO: 335-1-4	PAGE: 5 OF: 10 SHEET: ProcHAP
AIR EMISSION CALCULATIONS	SUBJECT: Process HAP and GHG Emissions	DATE: June 22, 2020

DIESEL COMBUSTION

GHG EMISSIONS

Diesel CO2e Emission Factors:

		Global Warming Potential*	References
CO2	73.96 *kg CO_2/MMBtu*	1	*40 CFR Part 98, Table C-1 to Subpart C (11/2013) No.2*
CH4	3.0E-03 *kg CH_4/MMBtu*	25	*40 CFR Part 98, Table C-2 to Subpart C (11/2013) Petroleum*
N2O	6.0E-04 *kg N_2O/MMBtu*	298	*40 CFR Part 98, Table C-2 to Subpart C (11/2013) Petroleum*

** 40 CFR 98, Table A-1 (CFR 2018c)*

Source Data

		Power Rating		Operation	Fuel Consumption		CO2_tpy	CH4_tpy	N2O_tpy	CO2e_tpy
Source ID	Description	kW	hp	hr/yr	MMBtu/hr*	MMBtu/yr	CO2 ton/yr	CH4 ton/yr	N2O ton/yr	CO2e ton/yr
EDG1	Camp Emergency Generator	1,000	1,341	100	9.39	938.7	76.53	3.10E-3	6.21E-4	76.79
EDG2	Plant Emergency Generator #1	1,000	1,341	100	9.39	938.7	76.53	3.10E-3	6.21E-4	76.79
EDG3	Plant Emergency Generator #2	1,000	1,341	100	9.39	938.7	76.53	3.10E-3	6.21E-4	76.79
EDFP	Mill Fire Pump	200	268	100	1.88	187.7	15.31	6.21E-4	1.24E-4	15.36
Total					30.0	3,003.8	244.89	9.93E-3	1.99E-3	245.73

** Based on brake specific fuel consumption for diesel generators* 7,000 *Btu/hp-hr* *AP-42 Tbl 3.3-1*

*** Heat Content of* 0.137 *MMBtu/gal*

HAP Emissions - Diesel Engines

		Emission Factor (lb/MMBtu)		Emissions (≤600 hp)		Emissions (>600 hp)		Emissions (Total) lb/hr	Emissions (Total) ton/yr
	Pollutant	≤600 hp*	>600hp**	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
106-99-0	1,3-Butadiene	3.91E-5		7.34E-5	3.67E-6	0.00E+0	0.00E+0	7.34E-5	3.67E-6
83-32-9	Acenaphthene	1.42E-6	4.68E-6	2.67E-6	1.33E-7	1.32E-4	6.59E-6	1.34E-4	6.72E-6
208-96-8	Acenaphthylene	5.06E-6	9.23E-6	9.50E-6	4.75E-7	2.60E-4	1.30E-5	2.69E-4	1.35E-5
75-07-0	Acetaldehyde	7.67E-4	2.52E-5	1.44E-3	7.20E-5	7.10E-4	3.55E-5	2.15E-3	1.07E-4
107-02-8	Acrolein	9.25E-5	7.88E-6	1.74E-4	8.68E-6	2.22E-4	1.11E-5	3.96E-4	1.98E-5
120-12-7	Anthracene	1.87E-6	1.23E-6	3.51E-6	1.76E-7	3.46E-5	1.73E-6	3.81E-5	1.91E-6
56-55-3	Benz(a)anthracene	1.68E-6	6.22E-7	3.15E-6	1.58E-7	1.75E-5	8.76E-7	2.07E-5	1.03E-6
71-43-2	Benzene	9.33E-4	7.76E-4	1.75E-3	8.76E-5	2.19E-2	1.09E-3	2.36E-2	1.18E-3
50-32-8	Benzo(a)pyrene	1.88E-7	2.57E-7	3.53E-7	1.76E-8	7.24E-6	3.62E-7	7.59E-6	3.80E-7
205-99-2	Benzo(b)fluoranthene	9.91E-8	1.11E-6	1.86E-7	9.30E-9	3.13E-5	1.56E-6	3.14E-5	1.57E-6
191-24-2	Benzo(g,h,i)perylene	4.89E-7	5.56E-7	9.18E-7	4.59E-8	1.57E-5	7.83E-7	1.66E-5	8.29E-7
207-08-9	Benzo(k)fluoranthene	1.55E-7	2.18E-7	2.91E-7	1.45E-8	6.14E-6	3.07E-7	6.43E-6	3.22E-7
218-01-9	Chrysene	3.53E-7	1.53E-6	6.63E-7	3.31E-8	4.31E-5	2.15E-6	4.37E-5	2.19E-6
53-70-3	Dibenz(a,h)anthracene	5.83E-7	3.46E-7	1.09E-6	5.47E-8	9.74E-6	4.87E-7	1.08E-5	5.42E-7
206-44-0	Fluoranthene	7.61E-6	4.03E-6	1.43E-5	7.14E-7	1.13E-4	5.67E-6	1.28E-4	6.39E-6
86-73-7	Fluorene	2.92E-5	1.28E-5	5.48E-5	2.74E-6	3.60E-4	1.80E-5	4.15E-4	2.08E-5
50-00-0	Formaldehyde	1.18E-3	7.89E-5	2.22E-3	1.11E-4	2.22E-3	1.11E-4	4.44E-3	2.22E-4
193-39-5	Indeno(1,2,3-cd)pyrene	3.75E-7	4.14E-7	7.04E-7	3.52E-8	1.17E-5	5.83E-7	1.24E-5	6.18E-7
91-20-3	Naphthalene	8.48E-5	1.30E-4	1.59E-4	7.96E-6	3.66E-3	1.83E-4	3.82E-3	1.91E-4
85-01-8	Phenanthrene	2.94E-5	4.08E-5	5.52E-5	2.76E-6	1.15E-3	5.74E-5	1.20E-3	6.02E-5
129-00-0	Pyrene	4.78E-6	3.71E-6	8.97E-6	4.49E-7	1.04E-4	5.22E-6	1.13E-4	5.67E-6
108-88-3	Toluene	4.09E-4	2.81E-4	7.68E-4	3.84E-5	7.91E-3	3.96E-4	8.68E-3	4.34E-4
1330-20-7	Xylene	2.85E-4	1.93E-4	5.35E-4	2.68E-5	5.44E-3	2.72E-4	5.97E-3	2.99E-4
Total HAP				7.27E-3	3.64E-4	4.43E-2	2.22E-3	5.16E-2	2.58E-3
								TRUE	TRUE

**AP-42, Tab. 3.3-2, 10/96, diesel engines (≤ 600 hp)*

***AP-42, Tabs. 3.4-3 & 3.4-4, 10/96, large diesel engines (> 600 hp)*

AUTOCLAVE CO_2 EMISSIONS

CO2 Emissions

Source ID	Description	Operation hr/yr	CO2 Emissions ton/hr*	ton/yr
AC	Autoclave	8,760	5.40	47,316

**Per M3 Engineering, 10/11/2017; based on ore feed carbonate values and conservatively assuming limestone for neutralization.*
(M3 2017c)

LIME KILN CO_2 EMISSIONS

CO2 Emissions

Source ID	Description	Operation hr/yr	Feed ton/yr	Product ton/yr	Mass Loss ton/yr	CO2 ton/yr
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	8,760	82,688	52,377	30,311	30,311

MATERIAL PROCESSING HAP/TAP EMISSIONS

Cement Handling

Source ID	Description	Throughput ton/hr	ton/yr	Activity
CS1L	Cement/Shotcrete Silo #1 Loading	80	60,000	Cement Handling
CS2L	Cement/Shotcrete Silo #2 Loading	80	60,000	Cement Handling
CM	Central Mixer Loading	20	60,000.00	Cement Mixer

Activity Information

Activity	Material Processed	Throughput ton/hr	ton/yr
Cement Handling	Cement	160	120,000
Cement Mixer	Cement	20	60,000

Cement Handlir Cement Mixer

HAP/TAP Emission Factors and Emissions lb/hr ton/yr

CAS No.	HAP/TAP	(1) lb/ton	(2) lb/ton	Cement Handling lb/hr	ton/yr	Cement Mixer lb/hr	ton/yr	Total lb/hr	ton/yr
7440-38-2	Arsenic	1.68E-06	8.38E-06	2.69E-4	1.01E-4	1.68E-4	2.51E-4	4.36E-4	3.52E-4
7440-41-7	Beryllium	1.79E-08		2.86E-6	1.07E-6	--	--	2.86E-6	1.07E-6
7440-43-9	Cadmium	2.34E-07	1.18E-08	3.74E-5	1.40E-5	2.36E-7	3.54E-7	3.77E-5	1.44E-5
7440-47-3	Chromium	2.52E-07	1.42E-06	4.03E-5	1.51E-5	2.84E-5	4.26E-5	6.87E-5	5.77E-5
7439-92-1	Lead	7.36E-07	3.82E-07	1.18E-4	4.42E-5	7.64E-6	1.15E-5	1.25E-4	5.56E-5
7439-96-5	Manganese	2.02E-04	6.12E-05	3.23E-2	1.21E-2	1.22E-3	1.84E-3	3.35E-2	1.40E-2
7440-02-0	Nickel	1.76E-05	3.28E-06	2.82E-3	1.06E-3	6.56E-5	9.84E-5	2.88E-3	1.15E-3
7723-14-0	Phosphorus	1.18E-05	2.02E-05	1.89E-3	7.08E-4	4.04E-4	6.06E-4	2.29E-3	1.31E-3
Total HAP								3.94E-2	1.69E-2

(1) *Cement Handling - AP-42, Table 11.12-8, (06/06) Cement Silo Filing, Uncontrolled.*

(2) *Cement Mixer - AP-42, Table 11.12-8, (06/06) Central Mix Batching, Uncontrolled.*

Autoclave Non-HAP TAP Emissions

CAS No.	Pollutant	Throughpu ton/hr	Operation hr/yr	Emission Factor		Emissions lb/hr	ton/yr
7664-93-9	Sulfuric Acid	290	8,760	0.007	lb/ton(1)	2.03	8.9
7783-06-4	Hydrogen Sulfide		8,760	0.9	lb/hr(2)	0.9	3.9

(1) *H2SO4 is based on Acidic Autoclave test data (APT 2010)*

(2) *H2S is based on Acidic Autoclave test data (APT 2013)*

Conversions

2,000 lb/ton

MATERIAL PROCESSING HAP/TAP EMISSIONS

Ore Processing PM Emissions 5.9 lb/hr
25.8 ton/yr

Ore Dust HAP Concentrations[1] and Emissions

		Concentration	Emissions	
CAS No.	Pollutant	ppm	lb/hr	ton/yr
7440-38-2	Arsenic	667	0.003923	0.0172
7440-41-7	Beryllium	3.2	0.000019	0.0001
7440-43-9	Cadmium	0.5	0.000003	0.00001
7440-48-4	Cobalt	4	0.000024	0.0001
7440-47-3	Chromium	9	0.000053	0.0002
7439-97-6	Mercury	0.96	0.000006	0.00002
7439-96-5	Manganese	299	0.001759	0.0077
7440-02-0	Nickel	2	0.000012	0.0001
7439-92-1	Lead	8	0.000047	0.0002
7440-36-0	Antimony	23	0.000135	0.0006
7723-14-0	Phosphorus	650	0.003823	0.0167
Dust HAP Total			0.009803	0.0429

(1) *(Midas Gold 2017c)*

Ore Dust Non-HAP TAP Concentrations[1] and Emissions

		Concentration	Emissions	
CAS No.	Pollutant	ppm	lb/hr	ton/yr
7440-22-4	Silver	0.5	0.000003	0.00001
7440-39-3	Barium	800	0.004705	0.0206
7440-50-8	Copper	5	0.000029	0.0001
7439-98-7	Molybdenum	1	0.000006	0.00003
7440-28-0	Thallium	10	0.000059	0.00026
7440-61-1	Uranium	10	0.000059	0.0003
Dust HAP Total			0.004861	0.0213

(1) *(Midas Gold 2017c)*

Sb Concentrate Processing PM Emissions 0.12 lb/hr Stib. Conc.
0.52 ton/yr

Sb Concentrate Dust Non-HAP TAP Concentrations[1] and Emissions

		Concentration	Emissions	
CAS No.	Pollutant	ppm	lb/hr	ton/yr
7440-36-0	Antimony	580,000	0.0684	0.2998

(1) *(Midas Gold 2019d)*

Carbon Disulfide Emissions from Xanthate Decomposition

		Xanthate[1]	Molar	CS_2 MW	Temperature	Emissions	
CAS No.	Pollutant	ton/yr	Decomp.[2]	Ratio	Adj. Factor[3]	lb/hr	ton/yr
75-15-0	Carbon Disulfide	1,700	0.99%	0.376	0.01	0.0145	0.063

(1) *(Midas Gold 2016) p. 12-11*

(2) *(Air Sciences 2020) molar decomposition of of xanthate in solution to CS2 gas*

(3) *(Air Sciences 2020) based on the comparison of CS2 generation at 50C and 70C*

Conversions			MW	
2,000	lb/ton	Xanthate (PAX)	202.37	$C_6H_{11}KOS_2$
8,760	hr/yr	Carbon difulfide	76.139	CS_2

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: S. Pryor/E. Memon		
	PROJECT NO: 335-1-4	PAGE: 9	OF: 10	SHEET: ProcHAP
AIR EMISSION CALCULATIONS	SUBJECT: Process HAP and GHG Emissions	DATE: June 22, 2020		

MATERIAL PROCESSING HAP/TAP EMISSIONS

Lead Emission by Source

	Source ID	Description	TRUE Pb_tpy Pb ton/yr
	CS1L	Cement/Shotcrete Silo #1 Loading	2.21E-5
	CS2L	Cement/Shotcrete Silo #2 Loading	2.21E-5
	CM	Central Mixer Loading	1.15E-5
1	OC1	Loader Transfer of Ore to Grizzly	5.11E-6
1	OC2	Grizzly to Apron Feeder	5.11E-6
1	OC3	Apron Feeder to Dribble Conveyor	5.11E-6
1	OC4	Apron Feeder to Vibrating Grizzly	5.11E-6
1	OC5	Dribble Conveyor to Vibrating Grizzly	5.11E-6
1	OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	5.11E-6
5	OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	4.38E-5
1	OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	5.11E-6
3	OC9	Stockpile Transfers to Reclaim Conveyors	2.42E-5
3	OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	2.42E-5
3	OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	2.42E-5
6	OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	4.84E-5
1	OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	5.64E-6
	Total		2.62E-4

Cyanide Emissions from Mill Process Tanks, Carbon Stripping and Electrowinning Process

CAS No.	Source	Dia. ft	pH	Free CN- g/m3	T C	pKa	a0	H	kG m/s	Fa*Fw	g/s	lb/hr	ton/yr
592-01-8	CN Detox Tank 1	40	8.5	25	25	9.250	0.8490	0.0055	0.000311	0.688	0.00289	0.0229	0.101
592-01-8	CN Detox Tank 2	40	8.5	25	25	9.250	0.8490	0.0055	0.000311	0.688	0.00289	0.0229	0.101
592-01-8	CIP Leach Tank 1	52	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.668	0.00143	0.0114	0.050
592-01-8	CIP Leach Tank 2	52	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.668	0.00143	0.0114	0.050
592-01-8	CIP Leach Tank 3	52	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.668	0.00143	0.0114	0.050
592-01-8	CIP Leach Tank 4	52	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.668	0.00143	0.0114	0.050
592-01-8	CIL Tank 1	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIL Tank 2	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIL Tank 3	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIL Tank 4	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIL Tank 5	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIL Tank 6	54	10.25	125	30	9.120	0.0690	0.0065	0.000311	0.666	0.00248	0.0197	0.086
592-01-8	CIP Tank 1	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	CIP Tank 2	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	CIP Tank 3	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	CIP Tank 4	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	CIP Tank 5	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	CIP Tank 6	20	10.25	125	52.5	8.535	0.0189	0.0148	0.000311	0.742	0.00024	0.0019	0.008
592-01-8	EW Cells											0.0006	0.003
592-01-8	Preg/Barren Tanks											0.0006	0.003
												0.222	0.973

References for Open Leach and Detox Tanks emission calculations: (Card, T. 2009)(EPA 2009)(Schmidt 2010)

Reference for EW Cells and Preg/Barren Tanks emission factor: (APT 2009)

Conversions

8,760 hr/yr	453.5929 g/lb	Wind adjustment factor Fw	1
2,000 lb/ton	3.28084 ft/m		
	3,600 s/hr		

40 CFR 63 Subpart 7E MERCURY SOURCES

Mercury Emissions

Description	Subpart 7E Hg Emissions ton/yr	Oper. hr/yr	% of Subpart 7E for Controlled Systems* %	Controlled Hg Emissions* lb/hr	lb/yr	ton/yr
Autoclave **	0.107	8,760	10.0%	0.002	21.34	0.011
Refinery Sources (Kiln, EW, Retort, Furnace)	0.008	1,248	20.0%	0.003	3.36	0.002
Total 7439-97-6	0.115			0.005	24.70	0.012

**Based on Similar Source Hg Reporting Levels provided below*

***Expected actual emissions from Autoclave:* 0.0105 g/hr 2.3E-05 lb/hr 0.20 lb/yr *(M3 2019)*

Subpart 7E Limit - Ore Pretreatment Processes *(CFR 2018b)*

$$\frac{84\ \text{lb}}{\cancel{\text{MMton}}} \cdot \frac{2{,}540{,}400\ \cancel{\text{ton}}}{\text{yr}} \cdot \frac{\cancel{\text{MMton}}}{1.0\text{E+6}\ \cancel{\text{ton}}} = \frac{213.39\ \text{lb}}{\text{yr}}$$

Subpart 7E Limit - Carbon Processes with Mercury Retorts

$$\frac{0.8\ \text{lb}}{\cancel{\text{ton}}} \cdot \frac{21\ \cancel{\text{ton}}}{\text{yr}} = \frac{16.8\ \text{lb}}{\text{yr}}$$

Similar Source Hg Reporting Levels

Goldstrike Autoclaves 2 & 3 (2015 & 2016 Hg Reports) *(NDEP 2015a) (NDEP 2016)*

$$\frac{28.79\ \text{lb}}{\text{yr}} \cdot \frac{\text{yr}}{3.13\ \text{MMton}} = \frac{9.18\ \text{lb}}{\text{MMton}} \cdot \frac{\text{MMton}}{84\ \text{lb}} = 10.9\%$$

Twin Creeks Autoclaves 1 & 2 (2015 & 2016 Hg Reports) *(NDEP 2015a) (NDEP 2016)*

$$\frac{1.01\ \text{lb}}{\text{yr}} \cdot \frac{\text{yr}}{7.63\ \text{MMton}} = \frac{0.13\ \text{lb}}{\text{MMton}} \cdot \frac{\text{MMton}}{84\ \text{lb}} = 0.2\%$$

Goldstrike Refinery (2015 & 2016 Hg Reports) *(NDEP 2015a) (NDEP 2016)*

$$\frac{28.79\ \text{lb}}{\text{yr}} \cdot \frac{\text{yr}}{251.00\ \text{ton}} = \frac{0.11\ \text{lb}}{\text{MMton}} \cdot \frac{\text{ton}}{0.8\ \text{lb}} = 14.3\%$$

Twin Creeks Refinery (2015 & 2016 Hg Reports) *(NDEP 2015a) (NDEP 2016)*

$$\frac{31.27\ \text{lb}}{\text{yr}} \cdot \frac{\text{yr}}{142.77\ \text{ton}} = \frac{0.22\ \text{lb}}{\text{MMton}} \cdot \frac{\text{ton}}{0.8\ \text{lb}} = 27.4\%$$

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: E. Huelson/E. Memon
	PROJECT NO: 335-1-4	PAGE: 1 OF: 5 SHEET: Tanks
AIR EMISSION CALCULATIONS	SUBJECT: Fuel Storage Tanks	DATE: June 22, 2020

Fuel Storage Tanks

		Dimensions			VOC		
	Capacity	Diameter	Length	Throughput	Emissions[1]		Reference
Storage Tank	gal	ft	ft	gal/yr	lb/yr	ton/yr	
Mine Site Gasoline Tank #1	5,000	8.5	14.33	250,000	1,914.73	0.96	*(Midas Gold 2016), Table 12-4, annual use*
Mine Site Gasoline Tank #2	5,000	8.5	14.33	250,000	1,914.73	0.96	*(Midas Gold 2016), Table 12-4, annual use*
Mine Site Diesel Tank #3	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #4	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #5	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #6	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #7	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #8	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #9	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*
Mine Site Diesel Tank #10	25,000	12	29.70	725,000	14.60	0.007	*(Midas Gold 2016), (Midas Gold 2018c)*

[1] *Emissions calculated using EPA Tanks 4.0.9d (EPA 1999)*

Conversions

2,000 lb/ton

Mine Site Gasoline Tanks #1, #2

TANKS 4.0 Report

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Midas Gasoline Tank - 5,000 gal
City:	
State:	Idaho
Company:	Midas Gold
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):	14.33
Diameter (ft):	8.50
Volume (gallons):	5,000.00
Turnovers:	50.00
Net Throughput(gal/yr):	250,000.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Boise, Idaho (Avg Atmospheric Pressure = 13.28 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Midas Gasoline Tank - 5,000 gal - Horizontal Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 9)	All	52.81	46.88	58.74	50.94	3.9950	3.5384	4.4980	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Midas Gasoline Tank - 5,000 gal - Horizontal Tank

Annual Emission Calcaulations	
Standing Losses (lb):	693.2361
Vapor Space Volume (cu ft):	517.9338
Vapor Density (lb/cu ft):	0.0487
Vapor Space Expansion Factor:	0.1431
Vented Vapor Saturation Factor:	0.5264
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	517.9338
Tank Diameter (ft):	8.5000
Effective Diameter (ft):	12.4565
Vapor Space Outage (ft):	4.2500
Tank Shell Length (ft):	14.3300
Vapor Density	
Vapor Density (lb/cu ft):	0.0487
Vapor Molecular Weight (lb/lb-mole):	67.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.9950
Daily Avg. Liquid Surface Temp. (deg. R):	512.4830
Daily Average Ambient Temp. (deg. F):	50.9208
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	510.6108
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,400.5355

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Mine Site Gasoline Tanks #1, #2 - continued

TANKS 4.0 Report

Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1431
Daily Vapor Temperature Range (deg. R):	23.7125
Daily Vapor Pressure Range (psia):	0.9596
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.9950
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.5384
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.4980
Daily Avg. Liquid Surface Temp. (deg R):	512.4830
Daily Min. Liquid Surface Temp. (deg R):	506.5548
Daily Max. Liquid Surface Temp. (deg R):	518.4111
Daily Ambient Temp. Range (deg. R):	23.6750
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5264
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.9950
Vapor Space Outage (ft):	4.2500
Working Losses (lb):	1,221.4895
Vapor Molecular Weight (lb/lb-mole):	67.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.9950
Annual Net Throughput (gal/yr.):	250,000.0000
Annual Turnovers:	50.0000
Turnover Factor:	0.7667
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,914.7256

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Midas Gasoline Tank - 5,000 gal - Horizontal Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 9)	1,221.49	693.24	1,914.73

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Mine Site Diesel Tanks #3 - #10

TANKS 4.0 Report

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	25,000 gallon diesel storage tank
City:	Boise
State:	Idaho
Company:	Midas Gold
Type of Tank:	Vertical Fixed Roof Tank
Description:	Midas Gold Mine Site offroad diesel storage tanks

Tank Dimensions

Shell Height (ft):	29.70
Diameter (ft):	12.00
Liquid Height (ft) :	29.00
Avg. Liquid Height (ft):	14.50
Volume (gallons):	25,000.00
Turnovers:	29.00
Net Throughput(gal/yr):	725,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	1.00
Radius (ft) (Dome Roof)	12.00

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Boise, Idaho (Avg Atmospheric Pressure = 13.28 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

25,000 gallon diesel storage tank - Vertical Fixed Roof Tank
Boise, Idaho

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	52.81	46.88	58.74	50.94	0.0051	0.0041	0.0062	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0065

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

25,000 gallon diesel storage tank - Vertical Fixed Roof Tank
Boise, Idaho

Annual Emission Calcaulations	
Standing Losses (lb):	3.2383
Vapor Space Volume (cu ft):	1,776.1518
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0419
Vented Vapor Saturation Factor:	0.9958
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,776.1518
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	15.7046
Tank Shell Height (ft):	29.7000
Average Liquid Height (ft):	14.5000

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Mine Site Diesel Tanks #3 - #10 - continued

TANKS 4.0 Report

Roof Outage (ft):	0.5046
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.5046
Dome Radius (ft):	12.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0051
Daily Avg. Liquid Surface Temp. (deg. R):	512.4830
Daily Average Ambient Temp. (deg. F):	50.9208
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	510.6108
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,400.5355
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0419
Daily Vapor Temperature Range (deg. R):	23.7125
Daily Vapor Pressure Range (psia):	0.0022
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0051
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0041
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0062
Daily Avg. Liquid Surface Temp. (deg R):	512.4830
Daily Min. Liquid Surface Temp. (deg R):	506.5548
Daily Max. Liquid Surface Temp. (deg R):	518.4111
Daily Ambient Temp. Range (deg. R):	23.6750
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9958
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0051
Vapor Space Outage (ft):	15.7046
Working Losses (lb):	11.3607
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0051
Annual Net Throughput (gal/yr.):	725,000.0000
Annual Turnovers:	29.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	25,000.0000
Maximum Liquid Height (ft):	29.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	14.5990

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

25,000 gallon diesel storage tank - Vertical Fixed Roof Tank
Boise, Idaho

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	11.36	3.24	14.60

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AIR EMISSION CALCULATIONS	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis
	PROJECT NO: 335-1-4	PAGE: 1 OF: 2 SHEET: MineLimits
	SUBJECT: Max Case Operation	DATE: June 22, 2020

Maximum Mining Activity Rate

Maximum Operating Schedule

24 hr/day
365 day/yr

Maximum Production

180,000 ton/day, ore and rock *(Midas Gold 2019b)*
180,000 ton/day, ore *(Midas Gold 2019b)*
180,000 ton/day, rock *(Midas Gold 2019b)*

2 blasts per day *(Midas Gold 2019b)*
600 holes per blast *(Midas Gold 2019a)*

Modeling Scenarios

	Model Scenario	Pit: YPP ton/day	Pit: HFP ton/day	Pit: WEP ton/day	Pit: BT ton/day	Ore Destination: PC ton/day	Ore Destination: STKP ton/day	Development Rock Destination: FDRSF ton/day	Development Rock Destination: HFDRSF ton/day	Development Rock Destination: YPDRSF ton/day	Development Rock Destination: WEDRSF ton/day
YP	Y1	180,000	--	--	--	--	180,000	--	--	--	--
YP	Y2	180,000	--	--	--	--	--	180,000	--	--	--
YP	Y3	180,000	--	--	--	--	--	--	180,000	--	--
HF	H1	--	180,000	--	--	--	180,000	--	--	--	--
HF	H2	--	180,000	--	--	--	--	180,000	--	--	--
HF	H3	--	180,000	--	--	--	--	--	180,000	--	--
HF	H4	--	180,000	--	--	--	--	--	--	180,000	--
WE	W1	--	--	180,000	--	--	180,000	--	--	--	--
WE	W2	--	--	180,000	--	--	--	180,000	--	--	--
WE	W3	--	--	180,000	--	--	--	--	180,000	--	--
WE	W4	--	--	180,000	--	--	--	--	--	180,000	--
WE	W5	--	--	180,000	--	--	--	--	--	--	180,000
BT	B1	--	--	--	180,000	--	180,000	--	--	--	--
BT	B2	--	--	--	180,000	--	--	--	180,000	--	--

Daily maximum mining equipment

Equipment		Units	
Truck Fleet	Cat 789D	20	*(Midas Gold 2017b)*
Truck Fleet	Cat 740B	12	*(Midas Gold 2019b)*
Water truck	Cat 777D	2	*(Midas Gold 2017b)*
Dozer		6	*(Midas Gold 2017b)*
Grader		3	*(Midas Gold 2017b)*

Daily maximum access road traffic

	One-Way Trips per Day	
Road maintenance equipment	4	*(Midas Gold 2016); Table 12-2*
Light vehicles	19	*(Midas Gold 2016); Table 12-2*
Heavy vehicles	45	*(Midas Gold 2016); Table 12-2*
Total	68	

Acronyms

YPP	Yellow Pine Pit
HFP	Hangar Flats Pit
WEP	West End Pit
BT	Bradley Tailings
FDRSF	Fiddle DRSF
HFDRSF	Hangar Flats DRSF
YPDRSF	Yellow Pine DRSF
WEDRSF	West End DRSF
PC	Primary Crusher
STKP	Primary Crusher Stockpile

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis
	PROJECT NO: 335-1-4	PAGE: 2 OF: 2 SHEET: MineLimits
AIR EMISSION CALCULATIONS	SUBJECT: Max Case Operation	DATE: June 22, 2020

Dozer Location Percentages

	Pit				Ore Destination		Waste Destination			
Model Run	*YPP*	*HFP*	*WEP*	*BT*	*PC*	*STKP*	*FDRSF*	*HFDRSF*	*YPDRSF*	*WEDRSF*
Y1	50%	--	--	--	--	50%	--	--	--	--
Y2	50%	--	--	--	--	--	50%	--	--	--
Y3	50%	--	--	--	--	--	--	50%	--	--
H1	--	50%	--	--	--	50%	--	--	--	--
H2	--	50%	--	--	--	--	50%	--	--	--
H3	--	50%	--	--	--	--	--	50%	--	--
H4	--	50%	--	--	--	--	--	--	50%	--
W1	--	--	50%	--	--	50%	--	--	--	--
W2	--	--	50%	--	--	--	50%	--	--	--
W3	--	--	50%	--	--	--	--	50%	--	--
W4	--	--	50%	--	--	--	--	--	50%	--
W5	--	--	50%	--	--	--	--	--	--	50%
B1	--	--	--	50%	--	50%	--	--	--	--
B2	--	--	--	50%	--	--	--	50%	--	--

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis/E. Memon
	PROJECT NO: 335-1-4	PAGE: 1 OF: 20 SHEET: Mine
AIR EMISSION CALCULATIONS	SUBJECT: Mining Activity and Emissions	DATE: June 22, 2020

Model Scenario W3

Mining Activity and Emissions Emissions Summary

By Area/Model ID

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY	CO_PPH	CO_TPY	NOX_PPH	NOX_TPY	SO2_PPH	SO2_TPY	VOC_TPY
Area/	Location of	PM	PM10		PM2.5		CO		NOX		SO2		VOC
Model ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Y *YPP*	Yellow Pine Pit	--	--	--	--	--	--	--	--	--	--	--	--
H *HFP*	Hangar Flats Pit	--	--	--	--	--	--	--	--	--	--	--	--
W *WEP*	West End Pit	344.54	885.54	161.61	79.64	14.53	--	--	--	--	--	--	--
B *BT*	Bradley Tailings	--	--	--	--	--	--	--	--	--	--	--	--
YPPBL	Yellow Pine Pit Blasting	--	--	--	--	--	--	--	--	--	--	--	--
HFPBL	Hangar Flats Pit Blasting	--	--	--	--	--	--	--	--	--	--	--	--
WEPBL	West End Pit Blasting	117.35	334.38	61.02	19.29	3.52	1,742.00	635.83	46.80	17.08	0.09	0.03	--
BTBL	Bradley Tailings Blasting	--	--	--	--	--	--	--	--	--	--	--	--
STKP	PC Stockpile	--	--	--	--	--	--	--	--	--	--	--	--
FDRSF	Fiddle DRSF	--	--	--	--	--	--	--	--	--	--	--	--
HFDRSF	Hangar Flats DRSF	52.91	57.12	10.42	30.23	5.52	--	--	--	--	--	--	--
YPDRSF	Yellow Pine DRSF	--	--	--	--	--	--	--	--	--	--	--	--
WEDRSF	West End DRSF	--	--	--	--	--	--	--	--	--	--	--	--
TSF	Tailing Storage Facility	--	--	--	--	--	--	--	--	--	--	--	--
HR	Haul Roads	3,047.34	4,106.76	750.84	410.88	75.12	--	--	--	--	--	--	--
ACCRD	Access Roads	6.95	9.38	1.72	0.94	0.17	--	--	--	--	--	--	--
UGEXP	Scout Portal	0.002	0.004	0.001	0.001	0.0001	--	--	--	--	--	--	--
Total		3,569.10	5,393.19	985.62	540.98	98.87	1,742.00	635.83	46.80	17.08	0.09	0.03	--

See worksheet ROADS for haul road (HR) emissions by Model ID.

By Activity

	chk	chk-12	chk	chk	chk	chk	chk	chk	chk	chk	chk	chk
	PM	PM10		PM2.5		CO		NOX		SO2		VOC
Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Open Pit Drilling	284.70	811.20	148.04	46.80	8.54							
Open Pit Blasting	117.35	334.38	61.02	19.29	3.52	1,742.00	635.83	46.80	17.08	0.09	0.03	
Onsite Hauling	2,901.27	3,899.39	712.95	389.94	71.29							
Material Load / Unload	8.06	20.88	3.81	3.16	0.58							
Dozing	103.56	108.40	19.78	59.58	10.87							
Grading	36.80	60.51	11.04	6.25	1.14							
Water Truck Travel	109.27	146.86	26.85	14.69	2.69							
Access Road	6.95	9.38	1.72	0.94	0.17							
Wind Erosion	0.02	0.04	0.01	0.01	0.00							
Surface Exploration	1.12	2.14	0.39	0.32	0.06							
Underground Exploration	0.002	0.004	0.0007	0.0006	0.0001							
Total	3,569.10	5,393.19	985.62	540.98	98.87	1,742.00	635.83	46.80	17.08	0.09	0.03	--

W3 Model Input Emission Rates (g/s)

By Area/Model ID

		CO_PPH	NOX_TPY	NOX_PPH	PM2.5_TPY	PM2.5_PPD	PM10_PPD	SO2_PPH
Area/	Location of	CO	NO_X		$PM_{2.5}$		PM_{10}	SO_2
Model ID	Activity	8, 1-hr	Annual	1-hr	Annual	24-hr	24-hr	3, 1-hr
YPP	Yellow Pine Pit	--	--	--	--	--	--	--
HFP	Hangar Flats Pit	--	--	--	--	--	--	--
WEP	West End Pit	--	--	--	0.42	0.42	4.65	--
BT	Bradley Tailings	--	--	--	--	--	--	--
YPPBL	Yellow Pine Pit Blasting	--	--	--	--	--	--	--
HFPBL	Hangar Flats Pit Blasting	--	--	--	--	--	--	--
WEPBL	West End Pit Blasting	219.49	0.49	5.90	0.10	0.10	1.76	0.01
BTBL	Bradley Tailings Blasting	--	--	--	--	--	--	--
STKP	PC Stockpile	--	--	--	--	--	--	--
FDRSF	Fiddle DRSF	--	--	--	--	--	--	--
HFDRSF	Hangar Flats DRSF	--	--	--	0.16	0.16	0.30	--
YPDRSF	Yellow Pine DRSF	--	--	--	--	--	--	--
WEDRSF	West End DRSF	--	--	--	--	--	--	--
TSF	Tailing Storage Facility	--	--	--	--	--	--	--
HR	Haul Roads	--	--	--	2.16	2.16	21.56	--
ACCRD	Access Roads	--	--	--	0.00	0.00	0.05	--
UGEXP	Scout Portal	--	--	--	0.000003	0.000003	0.000021	--
Total		219.49	0.49	5.90	2.844043237	2.84	28.31	0.01
		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis/E. Memon
	PROJECT NO: 335-1-4	PAGE: 2 OF: 20 SHEET: Mine
AIR EMISSION CALCULATIONS	SUBJECT: Mining Activity and Emissions	DATE: June 22, 2020

Model Scenario W3

Mining Activity and Emissions Source Parameters Summary

ID	description	TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	SIG_Y_M	SIG_Z_M	PITVOL_M3	SXINIT_M	SYINIT_M	ANGL_DEG
	Location of	Source	UTM NAD 83		Elev.	Rel. Ht.	S-y/Width	S-z	Pit Vol.	Len X	Len Y	Angle
Model ID	Activity	Type	E m	N m	m	m	m	m	m^3	m	m	deg
YPP	Yellow Pine Pit	AREA	631,160	4,975,865	1,832	4.7		4.4		882	882	-8
HFP	Hangar Flats Pit	AREA	630,925	4,972,884	1,993	4.7		4.4		491.0	491.0	-
WEP	West End Pit	AREA	632,398	4,976,290	2,192	4.7		4.4		376.2	376.2	-
BT	Bradley Tailings	AREA	630,110	4,972,105	2,012	4.7		4.4		820	420	-
YPPBL	Yellow Pine Pit Blasting	VOLUME	631,471	4,976,374	1,717	15.0	20.2	7.0				
HFPBL	Hangar Flats Pit Blasting	VOLUME	631,171	4,973,129	1,891	15.0	20.2	7.0				
WEPBL	West End Pit Blasting	VOLUME	632,586	4,976,478	1,994	15.0	20.2	7.0				
BTBL	Bradley Tailings Blasting	VOLUME	630,520	4,972,315	2,012	15.0	20.2	7.0				
STKP	PC Stockpile	VOLUME	632,112	4,974,616	1,980	4.7	53.3	4.4				
FDRSF	Fiddle DRSF	VOLUME	630,981	4,974,903	2,115	4.7	180.2	4.4				
HFDRSF	Hangar Flats DRSF	VOLUME	630,158	4,972,124	2,080	4.7	174.8	4.4				
YPDRSF	Yellow Pine DRSF	VOLUME	631,491	4,976,383	1,904	4.7	182.2	4.4				
WEDRSF	West End DRSF	VOLUME	633,392	4,976,207	2,376	4.7	124.1	4.4				
TSF	Tailing Storage Facility	AREA	628,496	4,971,000	2,097	0				1,157	1,157	-
HR	Onsite Hauling	VOLUME	See worksheet: ROADS			4.7	15.1	4.4				
ACCRD	Access Roads	LINE	Variable			3.0	6.1	2.8				
UGEXP	Scout Portal	AREA	632,362	4,973,690	2,018	0.0		0.0		4.9	4.9	

Updat

Emissions by Model Scenario (ton/yr) Calculated on: 06/22/20

	PM	PM10		PM2.5		CO		NOX		SO2		VOC
Scenario	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Y1	1,484.1	2,607.5	476.3	264.1	48.2	1,742.0	635.8	46.8	17.1	0.1	0.0	-
Y2	1,922.8	3,180.5	581.1	319.7	58.4	1,742.0	635.8	46.8	17.1	0.1	0.0	-
Y3	2,794.1	4,351.6	795.2	436.8	79.8	1,742.0	635.8	46.8	17.1	0.1	0.0	-
H1	2,073.0	3,399.0	621.0	343.3	62.7	1,742.0	635.8	46.8	17.1	0.1	0.0	-
H2	2,824.9	4,393.0	802.7	441.0	80.6	1,742.0	635.8	46.8	17.1	0.1	0.0	-
H3	1,931.6	3,192.3	583.2	320.9	58.6	1,742.0	635.8	46.8	17.1	0.1	0.0	-
H4	2,327.9	3,724.9	680.6	374.2	68.4	1,742.0	635.8	46.8	17.1	0.1	0.0	-
W1	1,856.7	3,108.4	567.9	314.2	57.4	1,742.0	635.8	46.8	17.1	0.1	0.0	-
W2	2,649.1	4,156.7	759.5	417.3	76.3	1,742.0	635.8	46.8	17.1	0.1	0.0	-
W3	**3,569.1**	**5,393.2**	**985.6**	**541.0**	**98.9**	1,742.0	635.8	46.8	17.1	0.1	0.0	-
W4	1,896.3	3,144.9	574.5	316.2	57.8	1,742.0	635.8	46.8	17.1	0.1	0.0	-
W5	2,039.1	3,336.8	609.6	335.3	61.3	1,742.0	635.8	46.8	17.1	0.1	0.0	-
B1	2,284.9	3,683.2	673.0	371.6	67.9	1,742.0	635.8	46.8	17.1	0.1	0.0	-
B2	934.8	1,852.0	338.2	186.8	34.1	1,742.0	635.8	46.8	17.1	0.1	0.0	-

Highest emissions are highlighted in red .

Model Scenario W3

Open Pit Drilling

Activity Information

Operating schedule	365 day/yr			
Total drill holes per year	1,200 hole/day	2 blast/day	600 hole/blast	

Annual LOM-W3 rates		Material blasted	Drilling
YPP	Yellow Pine Pit	0 ton/day	0 hole/day
HFP	Hangar Flats Pit	0 ton/day	0 hole/day
WEP	West End Pit	180,000 ton/day	1,200 hole/day
BT	Bradley Tailings	0 ton/day	0 hole/day
	Total	180,000 ton/day	1,200 hole/day

Emission Factors

TSP (PM) 1.3 lb/hole *AP-42, Tab. 11.9-4, 7/98 (overburden)*

PM Scaling Factors

PM	1	
PM10	0.52	*AP-42, Tab. 11.9-1, 7/98 (blasting, overburden)*
PM2.5	0.03	*AP-42, Tab. 11.9-1, 7/98 (blasting, overburden)*

Emissions by Model ID

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
	Location of	PM	PM10		PM2.5	
Model ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
YPP	Yellow Pine Pit	--	--	--	--	--
HFP	Hangar Flats Pit	--	--	--	--	--
WEP	West End Pit	284.70	811.20	148.04	46.80	8.54
BT	Bradley Tailings	--	--	--	--	--
Total	Open Pit Drilling	284.70	811.20	148.04	46.80	8.54

Source Parameters [1]

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	PITVOL_M3	SXINIT_M	SYINIT_M	SIG_Z_M	ANGL_DEG	Area
		Source	UTM NAD 83		Elev.	Rel. Ht.	Pit Vol.	Len X	Len Y	S-z	Angle	
Model ID	Activity	Type	E m	N m	m	m	m^3	m	m	m	deg	m2
YPP	Yellow Pine Pit	AREA	631,160	4,975,865	1,832	4.75		882.0	882.0	4.42	-8.0	777906
HFP	Hangar Flats Pit	AREA	630,925	4,972,884	1,993	4.75		491.0	491.0	4.42	0.0	241069
WEP	West End Pit	AREA	632,398	4,976,290	2,192	4.75		376.2	376.2	4.42	0.0	141544

[1] *UTM - (Midas Gold 2017d); Rel. Ht. - (EPA 2012); Len X, Len Y, Angle - best-fit equal area rectangle; Elev. - (Midas Gold 2018g)*

Source Parameters [1]

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M		SXINIT_M	SYINIT_M	SIG_Z_M	ANGL_DEG	
		Source	UTM NAD 83		Elev.	Rel. Ht.	Pit Vol.	Len X	Len Y	S-z	Angle	
Model ID	Activity	Type	E m	N m	m	m	m^3	m	m	m	deg	
BT	Bradley Tailings	AREA	630,110	4,972,105	2,012	4.75		820	420	4.42	0.0	344400

[1] *UTM, Elev. - (Midas Gold 2017d); Rel. Ht. - (EPA 2012); Len X, Len Y - best-fit equal area rectangle*

Conversions
2,000 lb/ton

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis/E. Memon
	PROJECT NO: 335-1-4	PAGE: 4 OF: 20 SHEET: Mine
AIR EMISSION CALCULATIONS	SUBJECT: Mining Activity and Emissions	DATE: June 22, 2020

Model Scenario W3

Open Pit Blasting

Activity Information

Operating schedule	365	day/yr	24	hr/day	
Blast area	80,795	ft^2/blast	*(Midas Gold 2017b)*		
Blast frequency	1	blast/hr	2	blast/day	730 blast/yr
ANFO use	26	ton/blast	*(Midas Gold 2017b)*		18,980 ton/yr

Annual LOM-W3 rates	Material blasted	Blasting	ANFO use	
Yellow Pine Pit	0 ton/day	0 blast/day	0 ton ANFO/hr	*(Midas Gold 2017b)*
Hangar Flats Pit	0 ton/day	0 blast/day	0 ton ANFO/hr	*(Midas Gold 2017b)*
West End Pit	180,000 ton/day	2 blast/day	26 ton ANFO/hr	*(Midas Gold 2017b)*
Bradley Tailings	0 ton/day	0 blast/day	0 ton ANFO/hr	
Total	180,000 ton/day	2 blast/day	26 ton ANFO/hr	

Emission Factors

Emission factor equation	TSP (lb/blast) = 0.000014 x $A^{1.5}$	*AP-42, Tab. 11.9-1, 7/98 (blasting, overburden)*	
A = Area per blast	80,795 ft^2		
TSP (PM)	321.52 lb/blast		
CO	67 lb/ton-ANFO	*AP-42, Tab. 13.3-1, 2/80 (ANFO)*	
NOX	0.9 kg/t-ANFO	*(CSIRO 2008)*	
	1.8 lb/ton-ANFO		
SO2	3.6E-03 lb/ton-ANFO	*Based on:* 6% *diesel content in ANFO*	*(Midas Gold 2017e)*

$$\frac{1.5E\text{-}05\ \cancel{lb\ S}}{\cancel{lb\ FO}} \cdot \frac{2\ lb\ SO2}{\cancel{lb\ S}} \cdot \frac{6\%\ \cancel{lb\ FO}}{\cancel{lb\ ANFO}} \cdot \frac{2{,}000\ \cancel{lb\ ANFO}}{ton\ ANFO} = \frac{3.6E\text{-}03\ lb\ SO2}{ton\ ANFO}$$

PM Scaling Factors

PM10	0.52	*AP-42, Tab. 11.9-1, 7/98 (blasting, overburden)*
PM2.5	0.03	*AP-42, Tab. 11.9-1, 7/98 (blasting, overburden)*

Emissions by Model ID

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY	CO_PPH	CO_TPY	NOX_PPH	NOX_TPY	SO2_PPH	SO2_TPY
		PM	PM10		PM2.5		CO		NOX[1]		SO2	
Model ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
YPPBL	Yellow Pine Pit Blasting	--	--	--	--	--	--	--	--	--	--	--
HFPBL	Hangar Flats Pit Blasting	--	--	--	--	--	--	--	--	--	--	--
WEPBL	West End Pit Blasting	117.35	334.38	61.02	19.29	3.52	1,742.00	635.83	46.80	17.08	0.0936	0.0342
BTBL	Bradley Tailings Blasting	--	--	--	--	--	--	--	--	--	--	--
Total	Open Pit Blasting	117.35	334.38	61.02	19.29	3.52	1,742	635.83	46.80	17.08	0.0936	0.0342

(1) *NO2/NOX:* 0.0357 *(CSIRO 2008)*

Source Parameters (1)

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	SIG_Y_M	SIG_Z_M
		Source	UTM NAD 83		Elev.	Rel. Ht.	S-y	S-z
Model ID	Activity	Type	E m	N m	m	m	m	m
YPPBL	Yellow Pine Pit Blasting	VOLUME	631,471	4,976,374	1,717	15	20.23	6.98
HFPBL	Hangar Flats Pit Blasting	VOLUME	631,171	4,973,129	1,891	15	20.23	6.98
WEPBL	West End Pit Blasting	VOLUME	632,586	4,976,478	1,994	15	20.23	6.98
BTBL	Bradley Tailings Blasting	VOLUME	630,520	4,972,315	2,012	15	20.23	6.98

(1) *UTM, Elev. - (Midas Gold 2017d); Rel. Ht. - (CSIRO 2008); S-y, S-z factors - (EPA 2016)*

Blast height (BH)	30 m	*(CSIRO 2008)/5 for conservatism*	Sigma divider			
Blast width	87 m	*sqrt(blast area)*	Rel. Ht.	2	of BH	*(EPA 2016)*
Blast depth	87 m	*sqrt(blast area)*	S-y	4.3	of SL	*(EPA 2016)*
Equal area side length (SL)	87 m		S-z	4.3	of BH	*(EPA 2016)*

Conversions
- 2,000 lb/ton
- 2.205 lb/kg
- 1.102 ton/t
- 3.281 ft/m

Model Scenario W3
Onsite Hauling

Activity Information
Operating schedule 365 day/yr 24 hr/day

Hauling Routes, Production Rates and Distances

Route Origin		Destination		Material Hauled (1) Material Type	Rate ton/day	One-Way Hauling (2) mi	Truck Loads (3) load/day	Total Travel (4) VMT/day
Unpaved Roads								
YPP-J Yellow Pine Pit	YPP	Process PC	PC	Ore	--	1.84	--	--
YPP-S Yellow Pine Pit	YPP	PC Stockpile	STKP	Ore	--	1.80	--	--
YPP-J Yellow Pine Pit	YPP	Fiddle DRSF	FDRSF	Rock	--	2.81	--	--
YPP-J Yellow Pine Pit	YPP	Hangar Flats DRSF	HFDRSF	Rock	--	4.76	--	--
YPP-Y Yellow Pine Pit	YPP	Yellow Pine DRSF	YPDRSF	Rock	--		--	--
YPP-J Yellow Pine Pit	YPP	West End DRSF	WEDRSF	Rock	--		--	--
HFP- Hangar Flats Pit	HFP	Process PC	PC	Ore	--	3.16	--	--
HFP- Hangar Flats Pit	HFP	PC Stockpile	STKP	Ore	--	3.12	--	--
HFP- Hangar Flats Pit	HFP	Fiddle DRSF	FDRSF	Rock	--	4.83	--	--
HFP- Hangar Flats Pit	HFP	Hangar Flats DRSF	HFDRSF	Rock	--	2.83	--	--
HFP- Hangar Flats Pit	HFP	Yellow Pine DRSF	YPDRSF	Rock	--	3.72	--	--
HFP- Hangar Flats Pit	HFP	West End DRSF	WEDRSF	Rock	--		--	--
WEP- West End Pit	WEP	Process PC	PC	Ore	--	2.68	--	--
WEP- West End Pit	WEP	PC Stockpile	STKP	Ore	--	2.63	--	--
WEP- West End Pit	WEP	Fiddle DRSF	FDRSF	Rock	--	4.43	--	--
WEP- West End Pit	WEP	Hangar Flats DRSF	HFDRSF	Rock	180,000	6.49	1,264	16,415
WEP- West End Pit	WEP	Yellow Pine DRSF	YPDRSF	Rock	--	2.75	--	--
WEP- West End Pit	WEP	West End DRSF	WEDRSF	Rock	--	3.07	--	--
BT-PC Bradley Tailings	BT	Process PC	PC	Ore	--		--	--
BT-ST Bradley Tailings	BT	PC Stockpile	STKP	Ore	--	3.59	--	--
BT-FI Bradley Tailings	BT	Fiddle DRSF	FDRSF	Rock	--		--	--
BT-H Bradley Tailings	BT	Hangar Flats DRSF	HFDRSF	Rock	--	0.60	--	--
BT-YI Bradley Tailings	BT	Yellow Pine DRSF	YPDRSF	Rock	--		--	--
BT-W Bradley Tailings	BT	West End DRSF	WEDRSF	Rock	--		--	--
Total					180,000			16,415

(1) *(Midas Gold 2019b)*
(2) *(Midas Gold 2017d)*
(3) *See truck fleet information below.*
(4) *Truck loads × One-way hauling ×* 2 *(round-trip)*

Truck Fleet

Truck	Payload Capacity (1) ton	Empty Weight (1) ton	Units (2)	Average Weight ton
Cat 789D	201.8	155.7	20	256.6
Cat 740B	43.5	37.6	12	59.4
Weighted Average	142.4		32	182.6

(1) *789D: (Caterpillar 2016), page 10-14*
740B: (Caterpillar 2011), page 13
(2) *(Midas Gold 2017b)* *(Midas Gold 2019b)*

Conversions
2,000 lb/ton

Model Scenario W3
Onsite Hauling - continued

Hauling Emissions by Route

Route Origin		Destination		Material Hauled Material Type	PM_TPY PM ton/yr	PM10_PPD PM10 lb/day	PM10_TPY PM10 ton/yr	PM2.5_PPD PM2.5 lb/day	PM2.5_TPY PM2.5 ton/yr
Unpaved Roads									
YPP- Yellow Pine Pit	YPP	Process PC	PC	Ore	--	--	--	--	--
YPP- Yellow Pine Pit	YPP	PC Stockpile	STKP	Ore	--	--	--	--	--
YPP- Yellow Pine Pit	YPP	Fiddle DRSF	FDRSF	Rock	--	--	--	--	--
YPP- Yellow Pine Pit	YPP	Hangar Flats DRSF	HFDRSF	Rock	--	--	--	--	--
YPP- Yellow Pine Pit	YPP	Yellow Pine DRSF	YPDRSF	Rock	--	--	--	--	--
YPP- Yellow Pine Pit	YPP	West End DRSF	WEDRSF	Rock	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	Process PC	PC	Ore	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	PC Stockpile	STKP	Ore	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	Fiddle DRSF	FDRSF	Rock	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	Hangar Flats DRSF	HFDRSF	Rock	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	Yellow Pine DRSF	YPDRSF	Rock	--	--	--	--	--
HFP- Hangar Flats Pit	HFP	West End DRSF	WEDRSF	Rock	--	--	--	--	--
WEP West End Pit	WEP	Process PC	PC	Ore	--	--	--	--	--
WEP West End Pit	WEP	PC Stockpile	STKP	Ore	--	--	--	--	--
WEP West End Pit	WEP	Fiddle DRSF	FDRSF	Rock	--	--	--	--	--
WEP West End Pit	WEP	Hangar Flats DRSF	HFDRSF	Rock	2,901.27	3,906.57	712.95	390.66	71.29
WEP West End Pit	WEP	Yellow Pine DRSF	YPDRSF	Rock	--	--	--	--	--
WEP West End Pit	WEP	West End DRSF	WEDRSF	Rock	--	--	--	--	--
BT-P Bradley Tailings	BT	Process PC	PC	Ore	--	--	--	--	--
BT-S Bradley Tailings	BT	PC Stockpile	STKP	Ore	--	--	--	--	--
BT-F Bradley Tailings	BT	Fiddle DRSF	FDRSF	Rock	--	--	--	--	--
BT-H Bradley Tailings	BT	Hangar Flats DRSF	HFDRSF	Rock	--	--	--	--	--
BT-Y Bradley Tailings	BT	Yellow Pine DRSF	YPDRSF	Rock	--	--	--	--	--
BT-W Bradley Tailings	BT	West End DRSF	WEDRSF	Rock	--	--	--	--	--
Pit Subtotal					2,901.27	3,906.57	712.95	390.66	71.29

Emission Factors

Unpaved roads

Annual emission factor equation	$E = k(s/12)^a (W/3)^b [(365-P)/365]$		*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
Daily emission factor equation	$E = k(s/12)^a (W/3)^b$		*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
s = Surface material silt content	4	%	*(Midas Gold 2015)*
W = Mean vehicle weight	182.6	ton	
P = Days/year with ≥0.01 in precip	120	day/yr	*AP-42 Fig. 13.2.2-1, 11/06*

	PM	PM10	PM2.5		
k = Size-specific empirical constant	4.9	1.5	0.15		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
a = Size-specific empirical constant	0.7	0.9	0.9		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
b = Size-specific empirical constant	0.45	0.45	0.45		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
E = Size-specific emission factor					
Annual	9.68	2.38	0.24	lb/VMT	
Daily	14.43	3.55	0.35	lb/VMT	

Emission Controls

Unpaved roads - periodic application of water and chemical dust suppressant

Control efficiency:	90%	*(Air Sciences 2018)*	for chemical suppressant; annual and daily
	33%	*Conservative estimate*	for watering; daily only

Model Scenario W3
Onsite Hauling - continued

Emissions by Area

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
		PM	PM10		PM2.5	
Area ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
HR	Onsite Hauling	2,901.27	3,899.39	712.95	389.94	71.29

See worksheet ROADS for haul road (HR) emissions by Model ID.

Source Parameters [1]

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	SIG_Y_M	SIG_Z_M
		Source	UTM NAD 83		Elev.	Rel. Ht.	S-y	S-z
Model ID	Activity	Type	E m	N m	m	m	m	m
HR	Onsite Hauling	VOLUME	*See worksheet: ROADS*			4.75	15.14	4.42

[1] *UTM, Elev. - (Midas Gold 2017d); Rel. Ht., Sy, Sz - (EPA 2012)*

Truck	Height		Reference
Cat 789D	6.5	m	*(Caterpillar 2016), page 10-14*
Cat 740B	4.1	m	*(Caterpillar 2011), page 14*
Weighted	5.58	m	
Road width (RW)	26.5	m	*(Midas Gold 2016), Fig. 9-1*

Plume Parameter	Calculation	Value (m)	Const.
Plume top (PT) - unpaved	1.7 x VH	9.49	1.7
Release height - unpaved	0.5 x PT	4.75	0.5
Plume width (PW)	RW + 6 m	32.55	6
Sigma-z - unpaved	PT / 2.15	4.42	2.15
Sigma-y	PW / 2.15	15.14	2.15

(EPA 2012)

Conversions
2,000 lb/ton
3.28 ft/m
12 in/ft

Model Scenario W3

Material Load / Unload

Activity Information

Operating schedule 365 day/yr

Throughput Rates chk

Model ID	Location of Activity	No. of Xfers	Rate ton/day	Total Rate ton/day	Xfer Description
YPP	Yellow Pine Pit	1	0	0	Load
HFP	Hangar Flats Pit	1	0	0	Load
WEP	West End Pit	1	180,000	180,000	Load
BT	Bradley Tailings	1	0	0	Load
PC	Process PC (1)	0	0	0	Unload
STKP	PC Stockpile	2	0	0	Unload & Reload
FDRSF	Fiddle DRSF	1	0	0	Unload
HFDRSF	Hangar Flats DRSF	1	180,000	180,000	Unload
YPDRSF	Yellow Pine DRSF	1	0	0	Unload
WEDRSF	West End DRSF	1	0	0	Unload

(1) *Ore unloading at primary crusher is accounted for in process sources*

Emission Factors

		PM	PM10	PM2.5		
k = Particle size multiplier		0.74	0.35	0.053		*AP-42, Sec. 13.2.4, Pg. 4, 11/06*
E = Emission facto	Load	0.00021	0.0001	0.000015	lb/ton	*AP-42, Tab. 11.19.2-2, 8/04 (truck loading - crushed stone)*
	Unload	0.00003	0.000016	0.0000024	lb/ton	*AP-42, Tab. 11.19.2-2, 8/04 (truck unloading - fragmented stone)*
	Unload &	0.00012	0.00006	0.00001	lb/ton	*Average of loading and unloading EF*

Emissions by Model ID chk PM_TPY PM10_PPD PM10_TPY PM2.5_PPD PM2.5_TPY

Model ID	Location of Activity	Total Rate ton/day	PM ton/yr	PM10 lb/day	PM10 ton/yr	PM2.5 lb/day	PM2.5 ton/yr
YPP	Yellow Pine Pit	--	--	--	--	--	--
HFP	Hangar Flats Pit	--	--	--	--	--	--
WEP	West End Pit	180,000	6.95	18.00	3.29	2.73	0.50
BT	Bradley Tailings	--	--	--	--	--	--
PC	Process PC	--	--	--	--	--	--
STKP	PC Stockpile	--	--	--	--	--	--
FDRSF	Fiddle DRSF	--	--	--	--	--	--
HFDRSF	Hangar Flats DRSF	180,000	1.11	2.88	0.53	0.44	0.08
YPDRSF	Yellow Pine DRSF	--	--	--	--	--	--
WEDRSF	West End DRSF	--	--	--	--	--	--
Total	Material Load / Unload	360,000	8.06	20.88	3.81	3.16	0.58

Conversions

2.237 mi/hr per m/s

2,000 lb/ton

Model Scenario W3

Material Load / Unload - continued

Source Parameters

Model ID	Location of Activity	TYPE Source Type	UTM_E_M UTM NAD 83 E m	UTM_N_M UTM NAD 83 N m	ELEV_M Elev. m	RELHT_M Rel. Ht. m	PITVOL_M3 Pit Vol. m^3	SXINIT_M Len X m	SYINIT_M Len Y m	SIG_Z_M S-z m	ANGL_DEG Angle deg	
YPP	Yellow Pine Pit	AREA	631,160	4,975,865	1,832	4.75		882	882	4.42	-8	Pits
HFP	Hangar Flats Pit	AREA	630,925	4,972,884	1,993	4.75		491	491	4.42	0	Pits
WEP	West End Pit	AREA	632,398	4,976,290	2,192	4.75		376	376	4.42	0	Pits
BT	Bradley Tailings	AREA	630,110	4,972,105	2,012	4.75		820	420	4.42	0	

Source Parameters [1]

Model ID	Location of Activity	TYPE Source Type	UTM_E_M UTM NAD 83 E m	UTM_N_M UTM NAD 83 N m	ELEV_M Elev. m	RELHT_M Rel. Ht. m	SIG_Y_M S-y m	SIG_Z_M S-z m	Surface Area m^2	Surface Length m	
STKP	PC Stockpile	VOLUME	632,112	4,974,616	1,980	4.75	53.35	4.42	5.26E+04	229.4	Stockpile
FDRSF	Fiddle DRSF	VOLUME	630,981	4,974,903	2,115	4.75	180.22	4.42	6.01E+05	774.9	DRSF
HFDRSF	Hangar Flats DRSF	VOLUME	630,158	4,972,124	2,080	4.75	174.81	4.42	5.65E+05	751.7	DRSF
YPDRSF	Yellow Pine DRSF	VOLUME	631,491	4,976,383	1,904	4.75	182.21	4.42	6.14E+05	783.5	DRSF
WEDRSF	West End DRSF	VOLUME	633,392	4,976,207	2,376	4.75	124.05	4.42	2.85E+05	533.4	DRSF

[1] *UTM, Elev., Area - (Midas Gold 2017d); Rel. Ht. - (EPA 2012); S-y, S-z factors - (EPA 2016)*

Vehicle height (VH): Reference
Weighted Average 5.58 m *(Caterpillar 2016), page 10-14, (Caterpillar 2*

Plume Parameter	Calculation	Value (m)	Const.
Plume top (PT)	1.7 x VH	9.49	1.7
Release height	0.5 x PT	4.75	0.5
Sigma-z	PT / 2.15	4.42	2.15

(EPA 2012)

Sample calculation for PC Stockpile

Plume Parameter	Calculation	Value (m)	Const.
Surface area (SA)	Map	52,623	
Side length (SL)	SA^0.5	229.4	0.5
Sigma-y	SL / 4.3	53.35	4.3

(EPA 2016)

Model Scenario W3

Dozing and Grading

Activity Information

Operating schedule 365 day/yr 24 hr/day

Dozer and Grader Fleet

Equipment Category	Units	Activity	
Dozer	6	144 hr/day	*(Midas Gold 2017b)*
Grader	3	72 hr/day	*(Midas Gold 2017b)*
		468 VMT/day	

Dozing Emission Factors

Emission Factor Equation	TSP (lb/hr) = 5.7 $(s)^{1.2}/(M)^{1.3}$	*AP-42, Tab. 11.9-1, 07/98, (bulldozing, overburden)*
	PM15 (lb/hr) = 1.0 $(s)^{1.5}/(M)^{1.4}$	*AP-42, Tab. 11.9-1, 07/98, (bulldozing, overburden)*
s = Surface material silt content	6.9 %	*AP-42, Table 11.9-3, 07/98, (bulldozers, overburden)*
M = Material moisture content	7.9 %	*AP-42, Table 11.9-3, 07/98, (bulldozers, overburden)*
TSP(PM)	3.941 lb/hr	
PM15	1.004 lb/hr	

Dozing PM Scaling Factors

PM10	0.75	*AP-42, Tab. 11.9-1, 07/98, (applies to PM15 EF, footnote d)*
PM2.5	0.105	*AP-42, Tab. 11.9-1, 07/98, (applies to TSP EF, footnote e)*

Grading Emission Factors

Emission Factor Equation	TSP (lb/VMT) = 0.04 $(S)^{2.5}$	*AP-42, Tab. 11.9-1, 07/98, (grading)*
	PM15 (lb/VMT) = 0.051 $(S)^{2}$	*AP-42, Tab. 11.9-1, 07/98, (grading)*
S - Grader average speed	6.5 mph	*(Caterpillar 2016), Road Maintenance, page 11-6, Average*
TSP(PM)	4.309 lb/VMT	
PM15	2.155 lb/VMT	

Grading PM Scaling Factors

PM10	0.6	*AP-42, Tab. 11.9-1, 07/98, (applies to PM15 EF, footnote d)*
PM2.5	0.031	*AP-42, Tab. 11.9-1, 07/98, (applies to TSP EF, footnote e)*

Emission Controls

Grading Periodic application of water and chemical dust suppressant

Control efficiency: 90% *See Onsite Hauling*

Emissions by Area

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
		PM	PM10		PM2.5	
Area ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ALL	Dozing	103.56	108.40	19.78	59.58	10.87
HR	Grading	36.80	60.51	11.04	6.25	1.14

Conversions

2,000 lb/ton

Model Scenario W3

Dozing and Grading - continued

		chk	chk	chk	chk	chk
Emissions by Model ID		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
		PM	PM10		PM2.5	
Model ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
YPP	Dozing	--	--	--	--	--
HFP	Dozing	--	--	--	--	--
WEP	Dozing	51.78	54.20	9.89	29.79	5.44
BT	Dozing	--	--	--	--	--
PC	Dozing	--	--	--	--	--
STKP	Dozing	--	--	--	--	--
FDRSF	Dozing	--	--	--	--	--
HFDRSF	Dozing	51.78	54.20	9.89	29.79	5.44
YPDRSF	Dozing	--	--	--	--	--
WEDRSF	Dozing	--	--	--	--	--
HR	Grading	36.80	60.51	11.04	6.25	1.14

See worksheet ROADS for haul road (HR) emissions by Model ID.

Source Parameters

Dozing: See Open Pit Drilling and Material Load / Unload for source parameters.

Grading: See Onsite Hauling for source parameters.

Model Scenario W3

Water Truck Travel

Activity Information

Operating schedule 365 day/yr 24 hr/day

Truck Fleet

Water Truck	Payload Capacity ton	Empty Weight ton	Gross Weight ton	Units	Oper. hr/day	Reference	Average Weight ton
Cat 777D	100	80	180	2	48	*(Caterpillar 2016), page 10-12*	130

Average truck speed 15 mph *(Midas Gold 2018b)*

Total vehicle miles traveled (VMT) 720 VMT/day

Emission Factors

Annual emission factor equation	$E = k(s/12)^a (W/3)^b [(365-P)/365]$	*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
Daily emission factor equation	$E = k(s/12)^a (W/3)^b$	*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
s = Surface material silt content	4 %	*(Midas Gold 2015)*
W = Mean vehicle weight	130.17 ton	
P = Days/year with ≥0.01 in precip.	120 day/yr	*AP-42 Fig. 13.2.2-1, 11/06*

		PM	PM10	PM2.5		
k = Size-specific empirical constant		4.9	1.5	0.15		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
a = Size-specific empirical constant		0.7	0.9	0.9		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
b = Size-specific empirical constant		0.45	0.45	0.45		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
E = Size-specific emission factor						
	Annual	8.32	2.04	0.20	lb/VMT	
	Daily	12.39	3.04	0.30	lb/VMT	

Emission Controls

Periodic application of water and chemical dust suppressant

Control efficiency: 90% *for chemical suppressant; annual and daily* *See Onsite Hauling*

33% *for watering; daily only*

Emissions by Area

		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
		PM	PM10		PM2.5	
Area ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
HR	Water Truck Travel	109.27	146.86	26.85	14.69	2.69

Source Parameters

See Onsite Hauling for source parameters.

Conversions

2,000 lb/ton

Model Scenario W3

Access Road

Activity Information

Operating schedule 365 day/yr 24 hr/day

Maintenance Equipment, Light and Heavy Truck Specifications and Traffic

Equipment	Equipment Model[1]	Notes	AADT[2]	Annual Traffic	Travel[3] VMT/yr	Vehicle Weight[4] Empty ton	Gross ton	Average Weight ton
Maintenance Equipment	Caterpillar 725C		3	1,095	1,772	25.6	51.6	38.6
Light Vehicles	Ford F-350	5	19	6,935	11,223	4.0	7.9	6.0
Heavy Trucks	Caterpillar CT660 (8X6)	6	45	16,425	26,581	10.1	34.5	22.3
Weighted Average Vehicle Weight								18.4

(1) *Appropriate equipment model from (Midas Gold 2017b)*

(2) *AADT = annual average daily traffic (Midas Gold 2016) Tab. 12-2;*
75% of total maintanance AADT (4) assigned to non-grader maintenance equipment and 25% assigned to grader

(3) *Based on access road length of:* 1.6 *mi (within project boundary)* *(Midas Gold 2017d)*

(4) *(Caterpillar 2016)/manufacturer specifications*

(5) *Light vehicles include visitor and employee vehicles.*

(6) *Heavy trucks include buses, supply, product shipment and trash trucks . 2917 lime delivery trips ((Midas Gold 2017a) Tab. 12-4) are excluded.*

Emission Factors

Annual emission factor equation	$E = k(s/12)^a (W/3)^b [(365-P)/365]$	*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
Daily emission factor equation	$E = k(s/12)^a (W/3)^b$	*AP-42, Sec. 13.2.2, Eq. 1a, 11/06*
s = Surface material silt content	4 %	*(Midas Gold 2015)*
W = Mean vehicle weight	18.42 ton	
P = Days/year with ≥0.01 in precip.	120 day/yr	*AP-42 Fig. 13.2.2-1, 11/06*

	PM	PM10	PM2.5		
k = Size-specific empirical constant	4.9	1.5	0.15		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
a = Size-specific empirical constant	0.7	0.9	0.9		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
b = Size-specific empirical constant	0.45	0.45	0.45		*AP-42, Tab. 13.2.2-2, Eqs. 1a and 2, 11/06*
E = Size-specific emission factor					
Annual	3.45	0.85	0.08	lb/VMT	
Daily	5.14	1.26	0.13	lb/VMT	

Emission Controls

Periodic application of water and chemical dust suppressant

Control efficiency: 90% *for chemical suppressant; annual and daily* *See Onsite Hauling*
33% *for watering; daily only*

Emissions by Area

				PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
				PM	PM10		PM2.5	
Area ID	Activity	VMT/day	VMT/yr	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ACCRD	Vehicle Travel	108.4	39,576	6.83	9.17	1.68	0.92	0.17

Conversions
2,000 lb/ton
1,609 m/mi

Model Scenario W3

Access Road

Grading Traffic

Equipment	AADT	Annual Traffic	VMT/day	VMT/yr
Grader	1	365	1.6	591

Emission Factors *Detailed emission factor calculations are provided on page 10*

PM 4.3 lb/VMT
PM10 1.3 lb/VMT
PM2.5 0.1 lb/VMT

Emission Controls

Periodic application of water and chemical dust suppressant
Control efficiency: 90% *See Onsite Hauling*

Emissions by Area

				PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
				PM	PM10		PM2.5	
Area ID	Activity	VMT/day	VMT/yr	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ACCRD	Grading	1.6	591	0.13	0.21	0.04	0.02	0.004

Source Parameters [1]

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	SIG_Y_M	SIG_Z_M
		Source	UTM NAD 83		Elev.	Rel. Ht.	Width	S-z
Model ID	Activity	Type	E m	N m	m	m	m	m
ACCRD	*Access Roads*	LINE		*Variable*		2.98	6.10	2.77

[1] *UTM, Elev. - (Midas Gold 2017d); Rel. Ht., Sz - (EPA 2012)*

Vehicle	Height	
Average	3.5 m	
Grader	3.7 m	
HD Truck	3.6 m	
LD Truck	3.2 m	
Road width (RW)	6.1 m	*(Midas Gold 2016), Fig. 7-2*
Road length	2,590 m	

Plume Parameter	Calculation	Value (m)	Const.
Plume top (PT) - unpaved	1.7 x VH	5.95	1.7
Release height - unpaved	0.5 x PT	2.98	0.5
Plume width (PW)	RW + 6 m	12.096	6
Sigma-z - unpaved	PT / 2.15	2.77	2.15

(EPA 2012)

Source Parameters

See Onsite Hauling for source parameters.

Conversions

3.28084 ft/m

Model Scenario W3

Wind Erosion

Activity Information

Operating schedule 365 day/yr

Erodible Area

Model ID	Location of Activity	Surface Type	Total Rate ton/yr	Erodible Area [3] Flat acre/yr	Erodible Area [3] Pile acre/yr	Surface Footprint
STKP	PC Stockpile	Pile	--		--	13
FDRSF	Fiddle DRSF	Pile	--		--	148
HFDRSF	Hangar Flats DRSF	Pile	180,000		20	140
YPDRSF	Yellow Pine DRSF	Pile	--		--	152
WEDRSF	West End DRSF	Pile	--		--	70
BT	Bradley Tailings	Flat		85		85
TSF	Tailing Storage Facility	Flat		331		331
HR	Haul Roads [1]	Flat		582		582
ACCRD	Access Roads [2]	Flat		4		4

[1] *Based on scenario haul road length of* 55 *mi* *and width of* 26.5 *m* *(Midas Gold 2016), Fig. 9-1*

[2] *Based on access road (within boundary) length of* 1.6 *mi* *and width of* 6.1 *m* *(Midas Gold 2016), Fig. 7-2*

[3] *Pile surface area calculations:*

Truck dump (TD) size 142.4 ton

Material density 150.2 lb/ft^3 *(Midas Gold 2017b), Average Ore & Waste (YP, HF, WE, BT)*

0.075 ton/ft^3

Material specific volume 13.3 ft^3/ton

TD volume (V) 1,896 ft^3

Conical surface calculations

Side slope 38 deg *Typical*

0.7 rad

Conical surface area (SA) Π × r × (h^2 + r^2)^0.5

Conical volume (V) (Π × h × r^2) ÷ 3

Conical base radius r = s × cos(slope)

Conical height h = s × sin(slope)

Sloped side length s = (h^2 + r^2)^0.5

Solution of conical volume equation

Replacing h and r with s × sin(slope) and s × cos(slope), respectively:

s = [3 × V/(pi × sin(slope) × cos^2(slope)]^(1/3) 16.8 ft

r 13.2 ft

h 10.3 ft

SA 698 ft^2

0.016 acre

1.1E-4 acre/ton-TD

Scaling Factors

PM10 0.5 *AP-42, Pg. 13.2.5-3, 11/06*

PM2.5 0.075 *AP-42, Pg. 13.2.5-3, 11/06*

Conversions

4,046.86 m^2/acre 2,000 lb/ton

43,560 ft^2/acre 12 in/ft

1,609.34 m/mi

3.28 ft/m

Air Sciences Inc.	PROJECT TITLE: Stibnite Gold Project	BY: K. Lewis/E. Memon
	PROJECT NO: 335-1-4	PAGE: 16 OF: 20 SHEET: Mine
AIR EMISSION CALCULATIONS	SUBJECT: Mining Activity and Emissions	DATE: June 22, 2020

Model Scenario W3

Wind Erosion - continued ***Wind erosion potential calculations based on Aug-2014 through Aug-2015 Midas Gold on site meteorological data***

Stockpile Surface Wind Erosion Event Emission Calculations

Based on 1 acre/yr 8,760 hr/yr 0.00011 acre/hr

Threshold Wind Event	Date / Hour	u10 (m/s) (1)	u10+ (m/s) (2)	u* (m/s) ID-A (3)	u* (m/s) ID-B (3)	u* (m/s) ID-C (3)	Hours Elapsed ID-A (4)	Hours Elapsed ID-B (4)	Hours Elapsed ID-C (4)	Erodible Surface Area (acre) ID-A (5)	Erodible Surface Area (acre) ID-B (5)	Erodible Surface Area (acre) ID-C (5)
0	6/12/2014 13:00											
1	9/25/2014 14:00	9.810	11.772	1.059	0.706	0.235	2,521	2,521	2,521	0.03453	0.1381	0.1151
2	11/29/2014 12:00	10.050	12.060	1.085	0.724	0.241	1,558	4,079	4,079	0.02134	0.2235	0.1863
3	12/11/2014 03:00	10.000	12.000	1.080	0.720	0.240	279	4,358	4,358	0.00382	0.2388	0.1990
4	12/11/2014 14:00	9.470	11.364	1.023	0.682	0.227	11	4,369	4,369	0.00015	0.2394	0.1995
5	2/5/2015 14:00	10.400	12.480	1.123	0.749	0.250	1,344	5,713	5,713	0.01841	0.3130	0.2609
6	2/6/2015 07:00	10.270	12.324	1.109	0.739	0.246	17	5,730	5,730	0.00023	0.3140	0.2616
7	8/21/2015 14:00	9.610	11.532	1.038	0.692	0.231	4,711	10,441	10,441	0.06453	0.5721	0.4768
8	8/21/2015 15:00	9.530	11.436	1.029	0.686	0.229	1	10,442	10,442	0.00001	0.5722	0.4768
Flat Surface Wind Erosion Event Emission Calculations												
				Flat			Flat			Flat		
N/A	No wind events above 16.04 m/s											

Stockpile Surface Wind Erosion Event Emission Calculations - continued

Threshold Wind Event	Erosion Potential (lb/acre)[1] ID-A (6)	ID-B (6)	ID-C (6)	PM Emissions (lb) ID-A (7)	ID-B (7)	ID-C (7)	Total (8)	PM10 (lb) Total (9)	PM2.5 (lb) Total (10)
1	9.61	--	--	0.332	--	--	0.332	0.166	0.025
2	16.80	--	--	0.359	--	--	0.359	0.179	0.027
3	15.25	--	--	0.058	--	--	0.058	0.029	0.004
4	0.62	--	--	9.34E-5	--	--	9.34E-5	4.67E-5	7.00E-6
5	28.5	--	--	0.525	--	--	0.525	0.263	0.039
6	24.00	--	--	0.006	--	--	0.006	0.003	0.000
7	4.15	--	--	0.268	--	--	0.268	0.134	0.020
8	2.11	--	--	2.88E-5	--	--	2.88E-5	1.44E-5	2.16E-6
Stockpile Subtotal							1.548	0.774	0.116
Flat Surface Wind Erosion Event Emission Calculations - continued									
N/A	No wind events above 16.04 m/s						--	--	--

Zero denotes winds did not exceed the threshold for a surface regime.

Final Emission Factors (lb/acre-yr)

Surface Type	PM	PM10	PM2.5
Pile	1.55	0.77	0.12
Flat	--	--	--

Model Scenario W3

Wind Erosion - continued

Stockpile Surface Wind Erosion Event Emission Calculations - Notes

(1) u10 = wind speed at 10 meters reference height, m/s

(2) u10+ = fastest-mile wind speed, m/s

Based on hourly to fastest-mile wind speed conversion factor of 1.2 *(EPA 1994)*

(3) Pile: u* = friction velocity, m/s = (us/ur) × 0.1 × u10+ *AP-42, Sec. 13.2.5, Eqs. 6 & 7, 11/06*

Area ID	A	B	C
(us/ur)	0.9	0.6	0.2

AP-42, Page 13.2.5-10, 11/06

Flat surface:

u* = friction velocity, m/s = 0.053 × u10+ *AP-42, Sec. 13.2.5, Eq. 4, 11/06*

(4) Hours elapsed since previous wind erosion event

(5) Erodible surface area = hours elapsed since previous erosion event × hourly erodible surface area (acre) × surface regime area fraction Surface regime area fractions:

Area ID	A	B	C
% Surface	0.12	0.48	0.4

AP-42, Page 13.2.5-10, 11/06

(6) Erosion potential, g/m^2, = P = 58(u* - ut*)^2 + 25(u* - ut*); P = 0 for u* ≤ ut*

where, ut* = threshold friction velocity = 1.02 m/s *AP-42, Page 13.2.5-5 (overburden), 11/06*

P converted to lb/acre by multiplying with: 0.002205 lb/g and 4,046.86 m^2/acre

Solving u* = (us/ur) × 0.1 × u10+ for u10, when u* = ut* = 1.02 m/s and u10+ = u* × 1.2

yields the following minimum wind speeds to disturb the each stockpile surface regime:

ID-A 9.44 m/s

ID-B 14.17 m/s

ID-C 42.50 m/s

The threshold wind speed to disturbe flat surfaces is 1.02/0.053/1.2

Flat surface 16.04 m/s

The maximum hourly wind speed in the onsite data is 10.4 m/s, which is less than the threshold wind speeds to cause a disturbance of stockpile regimes ID-B and ID-C, and flat surfaces.

(7) PM emissions, lb = P (lb/acre) × erodible surface area (acre)

(8) Total PM emissions, lb = PM (ID-A), lb + PM (ID-B), lb + PM(ID-C), lb

(9) Total PM10 emissions, lb = total PM emissions, lb × PM10 scaling factors of 0.5 *AP-42, Page 13.2.5-3, 11/06*

(10) Total PM2.5 emissions, lb = total PM emissions, lb × PM2.5 scaling factors of 0.075 *AP-42, Page 13.2.5-3, 11/06*

Model Scenario W3

Wind Erosion - continued

Emissions by Model ID

				chk PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
	Location of	Control[1]		PM	PM10		PM2.5	
Model ID	Activity		Type	ton/yr	lb/day	ton/yr	lb/day	ton/yr
STKP	PC Stockpile	--	Pile	--	--	--	--	--
FDRSF	Fiddle DRSF	--	Pile	--	--	--	--	--
HFDRSF	Hangar Flats DRSF	--	Pile	0.016	0.043	0.008	0.006	0.001
YPDRSF	Yellow Pine DRSF	--	Pile	--	--	--	--	--
WEDRSF	West End DRSF	--	Pile	--	--	--	--	--
BT	Bradley Tailings	--	Flat	--	--	--	--	--
TSF	Tailing Storage Facility	67%	Flat	--	--	--	--	--
HR	Haul Roads	90%	Flat	--	--	--	--	--
ACCRD	Access Roads	90%	Flat	--	--	--	--	--
Total	Wind Erosion			0.016	0.043	0.008	0.006	0.001

(1) *Bradley Tailings - maximum one-third of the total surface exposed* *(Midas Gold 2017f)*

Roads - see note on page 6

Conversions

2,000 lb/ton

Model Scenario W3

Surface Exploration

Activity Information

Operating schedule	365	day/yr	24	hr/day	
Duration	14	yr	168	mo	*(Midas Gold 2018a)*
Construction disturbance	13	acres	0.08	acre/mo	*(Midas Gold 2016), p. 13-1*
Total wet drilling (maximum)	700	holes	50	holes/yr	*(Midas Gold 2016), p. 13-1*
Material blasted	724.9	ton/hole			

Construction Emission Calculations

Emission Factors

PM	1.2	ton/acre per month of activity	*AP-42, Page 13.2.3-1, 1/95*

PM Scaling Factors

PM10	0.35	*AP-42, Sec. 13.2.4, Pg. 4, 11/06*
PM2.5	0.053	*AP-42, Sec. 13.2.4, Pg. 4, 11/06*

Construction Emissions

Activity	PM	PM10		PM2.5	
	ton/yr	lb/day	ton/yr	lb/day	ton/yr
Drill Pad and Temporary Road Construction	1.1	2.1	0.4	0.3	0.1

Wet Drilling Emission Calculations

Emission Factors

PM10	8.0E-5	lb/ton (material blasted)	*AP-42, Table 11.19.2-2 (wet drilling), Rev. 8/04*
	0.058	lb/hole	

PM Scaling Factors

PM	0.74	*AP-42, Sec. 13.2.4-4, 11/06*
PM10	0.35	*AP-42, Sec. 13.2.4-4, 11/06*
PM2.5	0.053	*AP-42, Sec. 13.2.4-4, 11/06*

Wet Drilling Emissions

Activity	PM	PM10		PM2.5	
	ton/yr	lb/day	ton/yr	lb/day	ton/yr
Wet Drilling	0.0031	0.0079	0.0015	0.0012	0.00022

Surface Exploration Total Emissions

PM	PM10		PM2.5	
ton/yr	lb/day	ton/yr	lb/day	ton/yr
1.12	2.14	0.39	0.32	0.06

Emissions by Model ID [1]

		chk	chk	chk	chk	chk
		PM_TPY	PM10_PPD	PM10_TPY	PM2.5_PPD	PM2.5_TPY
		PM	PM10		PM2.5	
Model ID	Activity	ton/yr	lb/day	ton/yr	lb/day	ton/yr
WEP	Surface Exploration	1.12	2.14	0.39	0.32	0.06

Conversions

12	in/ft
2,000	lb/ton
12	mo/yr
1.341	hp/kW

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Model Scenario W3

Underground Exploration

Activity Information

Operating schedule	365	day/yr	
Wet drilling	25	holes/yr	*(Midas Gold 2020)*

Wet Drilling Emission Calculations

Emission Factors

PM10	8.0E-5	lb/ton (material blasted)	*AP-42, Table 11.19.2-2 (wet drilling), Rev. 8/04*
	0.058	lb/hole	

PM Scaling Factors

PM	0.74	*AP-42, Sec. 13.2.4-4, 11/06*
PM10	0.35	*AP-42, Sec. 13.2.4-4, 11/06*
PM2.5	0.053	*AP-42, Sec. 13.2.4-4, 11/06*

Wet Drilling Emissions

Activity	PM	PM10		PM2.5	
	ton/yr	lb/day	ton/yr	lb/day	ton/yr
Wet Drilling	0.0015	0.0040	0.0007	0.0006	0.00011

Source Parameters (1)

		TYPE	UTM_E_M	UTM_N_M	ELEV_M	RELHT_M	SIG_Y_M	SIG_Z_M	SXINIT_M	SYINIT_M
		Source	UTM NAD 83		Elev.	Rel. Ht.	S-y	S-z	Length	Width
Model ID	Activity	Type	E m	N m	m	m	m	m	m	m
UGEXP	*Scout Portal*	AREA	632,362	4,973,690	2018	0	0	0	4.88	4.88

UTM, Elev. - (Midas Gold 2017d)

Conversions

907,186 g/ton

2,000 lb/ton

3.28084 ft/m

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		fug-lb/hr	fug-lb/day	fug-lb/yr	fug-ton/yr
Model Scenario	**W3**	PPH	PPD	PPY	TPY

Mining Fugitive Mercury Emissions Summary

		Emissions			
CAS No.	Pollutant/Group	lb/hr	lb/day	lb/yr	ton/yr
7439-97-6	Mercury	8.1E-4	1.9E-2	7.1E+0	3.5E-3
Total HAP		8.1E-4	1.9E-2	7.1E+0	3.5E-3

Conversions

2,000 lb/ton

1.10231 ton/t

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Model Scenario **W3**

Fugitive Mercury Emissions

Fugitive Mercury Flux and Emissions

CAS No.	Pollutant	Source	Area m²	Area ha	Hg Flux µg/m²-yr	Emissions[1] lb/hr	Emissions[1] lb/yr	Emissions[1] ton/yr
		Stockpiles	52,623	5.3	556	7.37E-6	6.5E-2	3.2E-5
		Rock Dumps	2,063,990	206.4	76.2	3.96E-5	0.35	1.7E-4
		Tailings	1,338,158	133.8	2,144	7.22E-4	6.32	3.2E-3
		Pits	1,160,519	116.1	132.3	3.86E-5	0.34	1.7E-4
7439-97-6	Mercury					8.1E-4	7.07	3.5E-3

[1] *Hourly emissions based o* 8,760 *hours per year of operation*

Fugitive Mercury Emission Factors

Source	Twin Creeks (TC) Hg Flux [1] µg/m²-yr	Twin Creeks (TC) Hg [2] µg/g	Ore Hg Adjusted µg/m²/yr TC	Stibnite Hg Flux [3] µg/m²-yr	Stibnite Hg [4] µg/g
Stockpiles	5,609	33	556	556	0.96
Rock Dumps	768	3.5	76.2	76.2	0.60
Tailings	21,621	33	2,144	2,144	0.96
Pits	1,334	9.5	132	132.3	0.60

[1] *(Eckley 2010)* *Table 1: Hg flux µg/m²-yr*

[2] *(Eckley 2010)* *Table 1: Average Hg flux mg/g: " Stockpiles - high-grade stockpiles, Rock Dumps - waste rock dumps, Tailings - high-grade stockpiles as a surrogate; Pits - pit"*

[3] *(Eckley 2010)* *Figure 2: log(y) = m*log(x) + b*

y = Hg Flux (ng/m²-d)

x = material Hg concentration (µg/g)]

Slope =	*Solar*	*TC*
	Low	*0.59*
	Medium	*0.6*
	High	*0.77*
	Average	*0.65*

[4] *(Midas Gold 2018e) Stockpiles - Ore, Rock Dumps - Rock, Tailings - Ore as a surrogate, Pits - Ore and Rock combined average*

Sample Calculation: m = log (y1/y2) / log(x1/x2)

m=	0.65	unit less
y1=	5,609	µg/m²-yr
x1=	33	µg/m²-yr
x2=	0.96	µg/m²-yr
log(x1/x2)=	1.5362427	unit less
log(y1/y2)=	1.0036786	unit less
y1/y2=	10.085062	unit less
y2=	556.2	µg/m²-yr

$$\frac{1 \text{ ng}}{\text{m2-d}} \Big| \frac{\mu\text{g}}{1{,}000 \text{ ng}} \Big| \frac{365 \text{ d}}{\text{yr}} = \frac{0.37 \ \mu\text{g/m2-yr}}{\mu\text{g/g}}$$

Conversions

2,000 lb/ton	0.365 (µg/m²-yr) / (ng/m²-d)
10,000 m2/ha	
453.593 g/lb	
1,000 ng/µg	
365 day/yr	

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Conversions

60	sec/min
60	min/hr
24	hr/day
365	day/yr
8,760	hr/yr
3,600	s/hr
2,000	lb/ton
453.593	g/lb
3.28084	ft/m
35.3147	ft^3/m^3
7,000	gr/lb
1.341	hp/kW
7.05	lb/gal distillate oi *AP-42 Appendix A "Weights of Selected Substances" (Distillate oil)*
907.1858189	kg/ton
459.67	°R at 0°F
68	°F, standard
7,000	BTU/hp-hr *AP-42, Sec. 3.3, (Diesel)*
2.2369	mi/hr per m/s
7.48052	gal/ft^3
1.10231	ton/t
2.20462	lb/kg
1609.34	m/mi
137,000	BTU/gal *AP-42, App. A (Diesel)*
4046.9	m^2/acre
43,560	ft^2/acre
12	in/ft
1.10231	ton/mt
1.0E+6	g/mt
3	ft/yd
1.0E+6	scf/MMscf
10,000	m^2/ha
1,000	kg/mt
273.15	°K at 0°C
32	°F at 0°C
1.8	°F/°C
1,000	ng/µg
0.293297222	MW-hr/MMBtu
12	mo/yr

Fuel Specifications

15	ppm S content	*40 CFR 80.510 (Non-road diesel)*	0.0015%	by weight
7.05	lb/gal-fuel	*AP-42, App. A*		
32.065	lb/lb-mol S, and			
64.06	lb/lb-mol SO2			
7,000	Btu/hp-hr	*AP-42, Sec. 3.3, (Diesel engine)*		
0.00939	MMBtu/kW-hr	*Diesel*		
0.137	MMBtu/gal	*AP-42, App. A (Diesel)*		
0.0915	MMBtu/gal Propane			

Constants

M.W. SO2	64.06
M.W. S	32.07
M.W. O	16

Diesel SO2

15	parts S	7.05	lb	64.06	SO2	gal	0.00939	MMBtu	453.593	g	=	6.57E-03 g SO2
1.0E+06		gal diese		32.065	S	0.137 MMBtu		kW-hr	lb			kW-hr

Propane SO2 Calculation

185	lb S	44.08	lb C3H8		lb mol	7,000	gr	100	SCF	=	15.90	gr S
1.00E+06	lb C3H8		lb mol	359.05	SCF (0C)		lb		100SCF			100 SCF

Propane heating value 91,500 *Btu/gal* *AP-42, Table 1.5-1 (07/08) Footnote a*

AP-42, Chapter 13.2.4 Particle Size Fractions

0.35	PM10
0.053	PM2.5

Fuel Combustion Exhaust Flow (EPA Method 19, Ffactor)

Propane Heater

F-factor	8,710	dscf/MMBtu	Propane, dry
O2%dry	3	%	
Heat input	1	MMBtu/hr	
Standard exhaust flow	10,170	dscf/hr	
	169	dscfm	
Vol % moisture	15.0%	standard for propane boilers	
Temperature	360	°F, Engineering Toolbox* (LPG heating appliances)	
Pressure, site	0.79	atm	
Actual exhaust flow	394	acfm (wet)/MMBtu	

Diesel Engine

F-factor	9,190	dscf/MMBtu	Oil, dry	
O2%dry	9	%		
Heat input	0.007	MMBtu/hp-hr	AP-42, Sec. 3.3, (Diesel engine)	
Standard exhaust flow	113	dscf/hp-hr		
	1.9	dscfm/hp		2.5 dscfm/kW
Vol % moisture	8.0%	standard for diesel engines		
Temperature	1,100	°F, Engineering Toolbox* (diesel exhaust)		
Pressure, site	0.79	atm		
Actual exhaust flow	7.7	acfm (wet)/hp		10.3 acfm (wet)/kW

* *http://www.engineeringtoolbox.com/fuels-exhaust-temperatures-d_168.html*

Exhaust Parameters

				dscfm	acfm	temp_F		dia_ft
				Exhaust Parameters				
	Hourly			Flow		Temp	Velocity	Dia
Source	Design Rate	Ref.	Water	dscfm	acfm	F	ft/s	ft
Carbon Regeneration Kiln (Drum)	0.3 ton	*(NDEP 2017)*	1%	120	180	150	17	0.48
Electrowinning Cells and Pregnant Solution Ta	100 gpm	*(NDEP 2017)*	4%	2,660	3,740	100	79	1
Mercury Retort	0.5/batch	*(NDEP 2017)*	1%	16	20	150	5	0.29
Induction Melting Furnace	0.5/batch	*(NDEP 2017)*	1%	3,500	5,200	150	71	1.25
Autoclave	290 ton	*(APT 2013)*	83%	3,101	28,680	196	24	5
Sb Bagging		*(NDEP 2015b)*	0%	800	1,000	68	21	1
Limestone Ball Mill		*(NDEP 2010)*	0%	13,000	16,500	68	88	2
Parallel Flow Regenerative (PFR) Shaft Lime Kiln		*(NDEP 2010)*	4%	8,000	16,300	350	86	2
Lime Mill Crushing and associated transfers In and Out		*(NDEP 2010)*	0%	2,000	2,500	68	119	0.6667

Site Pressure Calculation

http://www.sensorsone.com/altitude-pressure-units-conversion/

6000	23.978	6531.9	
7000	23.088	23.505	
0		29.921	0.78556

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Lime Kiln Specifications

810 *kcal/kg*	100 ton/day	*(Maerz 2018)*	3.96567 *btu/kcal*
870 *kcal/kg*	400 ton/day	*(Maerz 2018)*	
870 *kcal/kg*	169 ton/day	*Midas Gold Kiln Throughput, maximum-case fuel assumption*	

Lime kiln heat requirements

870 kcal	907.186 kg	3.96567 Btu	MMBtu	=	3.13 MMBtu
kg	ton	kcal	1.E+06 Btu		ton

Dyno Nobel 2010 "Blasting and Explosives Quick Reference Guide"

Dyno Nobel 2010 "Blasting and Explosives Quick Reference Guide" (Ratio of total of blast volume to drilled hole volume)

(B*S*BH*N)/(PI()*D^2/4000*L)

		B - Drilled Burden (m)	=(25 to 40) x D
		S - Drilled Spacing (m)	=1.15 x B
BH	10 m	BH - Bench Height (m)	≥D/15
		N - Number of Holes in a Blast	
N	100	D - Hole Diameter (mm)	
		L - Hole Length	
D	0.15 m		
B	4.9 m		
S	5.6 m		
L	10 m		
V	27,330 m3		
Material density		150.2 lb/ft^3	*(Midas Gold 2017b), Average Ore & Waste (YP, HF, WE, BT)*
M	72,493 ton	724.9 ton/hole	

Enclosure Control Efficiency Calculation

Emission factor equation	$E = 0.0032k(U/5)^{1.3}/(M/2)^{1.4}$				*AP-42, Sec. 13.2.4, Eq. 1, 11/06*
U = Mean wind speed	5.167 mph		2.31 m/s		*(Midas Gold 2017f), Fig. 4-3 (2014 onsite meteorological data)*
U = Mean wind speed	1.3 mph				*Lowest wind speed for Eq. 1, AP-42, Sec. 13.2.4, Eq. 1, 11/06*
M = Moisture content	2.5 %				
	PM	PM10	PM2.5		
k = Particle size multiplier	0.74	0.35	0.053		*AP-42, Sec. 13.2.4, Pg. 4, 11/06*
E = Emission factor	0.00181	0.00086	0.00013	lb/ton	U = 5.167
E = Emission factor	0.00030	0.00014	0.00002	lb/ton	U = 1.300
Control Efficiency	83.4%	83.4%	83.4%		

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Fuel Burning Equipment Emissions

	Source	MMBtu/hr	Flow Rate dscfm (dscfm)	PM lb/hr (PM_pph)	PM gr/dscf	PM Limit [1] gr/dscf	
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.72	461	0.021	0.005	0.015	In Compliance
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	17	2,881	0.130	0.005	0.015	In Compliance
CKB	Carbon Regeneration Kiln (Burners)	2.255	382	0.017	0.005	0.015	In Compliance
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	0.1	17	0.001	0.005	0.015	In Compliance
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	5	847	0.038	0.005	0.015	In Compliance
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	4	678	0.031	0.005	0.015	In Compliance
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	4	678	0.031	0.005	0.015	In Compliance
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	4	678	0.031	0.005	0.015	In Compliance
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	42	0.002	0.005	0.015	In Compliance
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	42	0.002	0.005	0.015	In Compliance
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	42	0.002	0.005	0.015	In Compliance
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	0.5	85	0.004	0.005	0.015	In Compliance
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	2	339	0.015	0.005	0.015	In Compliance
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	3	508	0.023	0.005	0.015	In Compliance
LKC	PFR Shaft Lime Kiln Combustion	22.0	8,000	0.169	0.002	0.015	In Compliance
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	9.39	1,259	0.441	0.041	0.05	In Compliance
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	9.39	1,259	0.441	0.041	0.05	In Compliance
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	9.39	1,259	0.441	0.041	0.05	In Compliance
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	1.88	252	0.088	0.041	0.05	In Compliance

[1] *58.01.01.676, Fuel Type: Gas, Emission Oxygen 3%*

Baghouse/Bin Vent Filter PM Emission Concentration

	Source	Control (control)	Flow Rate dscfm (dscfm)	PM lb/hr (PM_pph)	PM gr/dscf	PM10 lb/hr (PM10_pph)	PM10 gr/dscf
Sb2	Sb Bagging	Baghouse (BH1)	800	0.118	0.017	0.118	0.017
MF	Induction Melting Furnace	Baghouse (BH2)	3,500	2.839	0.095	2.839	0.095
LSBM	Limestone Ball Mill	Baghouse (BH3)	13,000	1.902	0.017	1.596	0.014
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	Baghouse (BH4)	8,000	0.915	0.013	0.915	0.013
LCR	Lime Mill Crushing and associated transfers In and Out	Baghouse (BH5)	2,000	0.284	0.017	0.239	0.014
LS1L	Mill Lime Silo #1 Loading	Bin Vent Filter	700	0.059	0.010	0.020	0.003
MillS2L	Mill Lime Silo #2 Loading	Bin Vent Filter	700	0.059	0.010	0.020	0.003
ACS1L	AC Lime Silo #1 Loading	Bin Vent Filter	1,400	0.119	0.010	0.041	0.003
ACS2L	AC Lime Silo #2 Loading	Bin Vent Filter	1,400	0.119	0.010	0.041	0.003
ACS3L	AC Lime Silo #3 Loading	Bin Vent Filter	1,400	0.119	0.010	0.041	0.003
ACS4L	AC Lime Silo #4 Loading	Bin Vent Filter	1,400	0.119	0.010	0.041	0.003
CS1L	Cement/Shotcrete Silo #1 Loading	Bin Vent Filter	930	0.079	0.010	0.027	0.003
CS2L	Cement/Shotcrete Silo #2 Loading	Bin Vent Filter	930	0.079	0.010	0.027	0.003
LSL	Pebble Lime Silo Loading via Bucket Elevator	Bin Vent Filter	70	0.006	0.010	0.006	0.010

Process Activity Uncontrolled Emissions

SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS								
Model	Source Description	Design Throughput						reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr										
OC1	Loader Transfer of Ore to Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760	(Midas Gold 2016), Sec. 10.1	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC2	Grizzly to Apron Feeder	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC3	Apron Feeder to Dribble Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC4	Apron Feeder to Vibrating Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC5	Dribble Conveyor to Vibrating Grizzly	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	1,042	25,000	9,125,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC9	Stockpile Transfers to Reclaim Conveyors	1,150	27,600	10,074,000	ton	Ore	8,760	(M3 2017b)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	1,150	27,600	10,074,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	1,150	27,600	10,074,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	1150.0	27,600	10,074,000	ton	Ore	8,760	0	0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	1150.0	27,600	10,074,000	ton	Ore	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS1L	Mill Lime Silo #1 Loading	60	250	4,375	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	20	250	4,375	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.00042					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
MillS2L	Mill Lime Silo #2 Loading	60	250	4,375	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	20	250	4,375	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.00042					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.72	65.28	23,827	MMBtu	Propane	8,760	(M3 2017d)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
Sb2	Sb Bagging	4.5	108	39,420	ton	Stib. Conc.	8,760	(M3 2017d)	1.178	1.178	1.178					lb/hr	Based on NDEP-BAPC Permit for Clay Bagging Operation (Hectatone) (NDEP 2015b), Assumed 90% BH ctrl.
AC	Autoclave	290	6,960	2,540,400	ton	Float Conc.	8,760	(M3 2017b)	16.916667	16.91667	16.91667			0.6525		lb/hr	Based on NDEP-BAPC Permits/test data for Autoclaves: PM & SO2 - [Goldstrike (NDEP 2012)], Assumed 70% PM ctrl. Negligible CO due to no organic carbon in the feed (M3 2017a)
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	17	17	510	MMBtu	Propane	30	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Ind. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
ACS1L	AC Lime Silo #1 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
ACS2L	AC Lime Silo #2 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
ACS3L	AC Lime Silo #3 Loading	120	1,000	17,500	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4

SOURCE DESCRIPTION		HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS						
Model	Source Description	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC
ID		lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr	ton/yr
OC1	Loader Transfer of Ore to Grizzly	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC2	Grizzly to Apron Feeder	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC3	Apron Feeder to Dribble Conveyor	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC4	Apron Feeder to Vibrating Grizzly	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC5	Dribble Conveyor to Vibrating Grizzly	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC6	Vibrating Grizzly to Primary Crusher or Coarse Ore Stockpile Feed Conveyor	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC7	Primary Crusher and Associated Transfers out to Coarse Ore Stockpile Feed Conveyor	5.63	2.50	0.38					135	60.00	9.00					24.64	10.95	1.64				
OC8	Coarse Ore Stockpile Feed Conveyor Transfer to Stockpile	3.13	1.15	0.18					75.00	27.50	4.25					13.69	5.02	0.78				
OC9	Stockpile Transfers to Reclaim Conveyors	3.45	1.27	0.20					82.80	30.36	4.69					15.11	5.54	0.86				
OC10	Reclaim Conveyors to SAG Mill Feed Conveyor	3.45	1.27	0.20					82.80	30.36	4.69					15.11	5.54	0.86				
OC11	SAG Mill Feed Conveyor Transfer to SAG Mill	3.45	1.27	0.20					82.80	30.36	4.69					15.11	5.54	0.86				
OC12	Pebble Crusher and Associated Transfers in (from SAG Mill) and out (to Pebble Discharge Conveyor)	6.21	2.76	0.41					149	66.24	9.94					27.20	12.09	1.81				
OC13	Pebble Discharge Conveyor to SAG Mill Feed Conveyor	3.45	1.27	0.20					82.80	30.36	4.69					15.11	5.54	0.86				
LS1L	Mill Lime Silo #1 Loading	43.80	28.20	4.27					183	118	17.79					1.60	1.03	0.16				
LS1U	Mill Lime Silo #1 Unloading to SAG Mill Conveyor	9.60E-2	5.60E-2	8.40E-3					1.20	0.70	0.11					1.05E-2	6.13E-3	9.19E-4				
MillS2L	Mill Lime Silo #2 Loading	43.80	28.20	4.27					183	118	17.79					1.60	1.03	0.16				
MillS2U	Mill Lime Silo #2 Unloading to SAG Mill Conveyor	9.60E-2	5.60E-2	8.40E-3					1.20	0.70	0.11					1.05E-2	6.13E-3	9.19E-4				
Sb1	Sb Dryer (2.72 MMBtu/hr Propane-Fired)	2.08E-2	2.08E-2	2.08E-2	0.22	0.39	4.73E-2	2.38E-2	0.50	0.50	0.50	5.35	9.27	1.13	0.57	9.11E-2	9.11E-2	9.11E-2	0.98	1.69	0.21	0.10
Sb2	Sb Bagging	1.18	1.18	1.18					28.27	28.27	28.27					5.16	5.16	5.16				
AC	Autoclave	16.92	16.92	16.92			0.65		406	406	406			15.66		74.10	74.10	74.10			2.86	
ACB	POX Boiler (17 MMBtu/hr Propane-Fired)	0.13	0.13	0.13	1.39	2.42	0.30	0.15	0.13	0.13	0.13	1.39	2.42	0.30	0.15	1.95E-3	1.95E-3	1.95E-3	2.09E-2	3.62E-2	4.43E-3	2.23E-3
ACS1L	AC Lime Silo #1 Loading	87.60	56.40	8.54					730	470	71.17					6.39	4.11	0.62				
ACS1U	AC Lime Silo #1 Unloading to Lime Slaker	9.60E-2	5.60E-2	8.00E-3					2.30	1.34	0.19					4.20E-2	2.45E-2	3.50E-3				
ACS2L	AC Lime Silo #2 Loading	87.60	56.40	8.54					730	470	71.17					6.39	4.11	0.62				
ACS2U	AC Lime Silo #2 Unloading to Lime Slaker	9.60E-2	5.60E-2	8.00E-3					2.30	1.34	0.19					4.20E-2	2.45E-2	3.50E-3				
ACS3L	AC Lime Silo #3 Loading	87.60	56.40	8.54					730	470	71.17					6.39	4.11	0.62				

SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS								
Model	Source Description	Design Throughput						reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr										
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	20	480	17,500	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
ACS4L	AC Lime Silo #4 Loading	120	500	8,750	ton	Lime	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	20	480	8,750	ton	Lime	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4
CKD	Carbon Regeneration Kiln (Drum)	0.3	7.2	2,628	ton	Carbon	8,760	(M3 2017b)	1.4	1.4	1.4	0.12	0.012		0.11	lb/hr	Based on NDEP-BAPC Permit for Carbon Regeneration Kiln [Goldstrike (NDEP 2012)], Assumed 70% PM ctrl.
CKB	Carbon Regeneration Kiln (Burners)	2.255	54.12	19,754	MMBtu	Propane	8,760	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
EW	Electrowinning Cells and Pregnant Solution Tank	100 gpm	24		gpm	Au Sol.	8,760	Typical Ind. Oper.	0.07	0.07	0.07					lb/hr	Based on similar source stack test data and 5× safety factor (APT 2016)
MR	Mercury Retort	0.5/batch	24 hr	21	ton	Au Conc.	1,248	(M3 2017b) & (M3 2017a)	0.01	0.01	0.01					lb/hr	Based on similar source stack test data and 5× safety factor (APT 2017)
MF	Induction Melting Furnace	0.5/batch	12 hr	21	ton	Au Conc.	624	(M3 2017b) & (M3 2017a)	5.68	5.68	5.68					lb/hr	Based on IDAPA 58.01.01.701 PM Weight Limit. Assumed unctrl = 2 x ctrl
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	1000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	1000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	1000	1 hr	100,000	bkW	Diesel	100	(M3 2017a)	0.2	0.2	0.2	3.5	6.4	0.00657	1.3	g/kW-hr	40 CFR Subpart 60.4202(a)(2); SO2 - mass balance (15ppm ULSD) (CFR 2018a)
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	200	1 hr	20,000	bkW	Diesel	100	Typical Ind. Oper.	0.2	0.2	0.2	3.5	4	0.00657	4	g/kW-hr	Table 4 to Subpart IIII of Part 60— 130≤KW<225 (175≤HP<300); SO2 - mass balance (15ppm ULSD) (CFR 2018a)
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	0.10	2.4	876	MMBtu	Propane	8,760	(M3 2017a)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	5.00	120	43,800	MMBtu	Propane	8,760	(M3 2017b)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	4.00	96	35,040	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	0.25	6	2,190	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	0.50	12	4,380	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	2.00	48	17,520	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	3.00	72	26,280	MMBtu	Propane	8,760	Typical Ind. Oper.	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
PSL	Prill Silos Loading (2 x 100 ton)	200	200	7,300	ton	Prill	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.02	0.007	0.00106					lb/ton	AP-42, Table 8.3-2 (7/93), Bulk Loading - unctrl; PM10/PM2.5 Ch. 13.2.4
PSU	Prill Silos Unloading (2 x 100 ton)	200	200	7,300	ton	Prill	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide silo capacity)	0.02	0.007	0.00106					lb/ton	AP-42, Table 8.3-2 (7/93), Bulk Loading - unctrl; PM10/PM2.5 Ch. 13.2.4
CS1L	Cement/Shotcrete Silo #1 Loading	80	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
CS1U	Cement/Shotcrete Silo #1 Unloading	20	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.
CS2L	Cement/Shotcrete Silo #2 Loading	80	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.73	0.47	0.07117					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading; PM2.5 Ch. 13.2.4
CS2U	Cement/Shotcrete Silo #2 Unloading	20	80	60,000	ton	Cement	8,760	Typical Ind. Oper.	0.0048	0.0028	0.0004					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.
CAL	Aggregate Bin Loading	100	2,400	500,000	ton	Aggregate	8,760	Typical Ind. Oper.	0.0069	0.0033	0.0005					lb/ton	AP-42, Table 11.12-2 (6/06), pneumatic loading-ctrl.; PM2.5 Ch. 13.2.4.
CAU	Aggregate Bin Unloading	100	2,400	500,000	ton	Aggregate	8,760	Typical Ind. Oper.	0.0069	0.0033	0.0005					lb/ton	AP-42, Table 11.12-2 (6/06), weigh hopper loading-unctrl.; PM2.5 Ch. 13.2.4.
CM	Central Mixer Loading	20 (120)	80 (2,480)	60,000 (560K)	ton-cement (tot.)	Cement (mix)	8,760	Typical Ind. Oper.	0.572	0.156	0.0236					lb/ton	AP-42, Table 11.12-2 (6/06), central mixer

SOURCE DESCRIPTION		HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS						
Model ID	Source Description	PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	CO lb/hr	NOx lb/hr	SO_2 lb/hr	VOC lb/hr	PM lb/day	PM_{10} lb/day	$PM_{2.5}$ lb/day	CO lb/day	NOx lb/day	SO_2 lb/day	VOC lb/day	PM ton/yr	PM_{10} ton/yr	$PM_{2.5}$ ton/yr	CO ton/yr	NOx ton/yr	SO_2 ton/yr	VOC ton/yr
ACS3U	AC Lime Silo #3 Unloading to Lime Slaker	9.60E-2	5.60E-2	8.00E-3					2.30	1.34	0.19					4.20E-2	2.45E-2	3.50E-3				
ACS4L	AC Lime Silo #4 Loading	87.60	56.40	8.54					365	235	35.59					3.19	2.06	0.31				
ACS42U	AC Lime Silo #4 Unloading to Lime Slaker	9.60E-2	5.60E-2	8.00E-3					2.30	1.34	0.19					2.10E-2	1.23E-2	1.75E-3				
CKD	Carbon Regeneration Kiln (Drum)	1.40	1.40	1.40	0.12	1.20E-2		0.11	33.60	33.60	33.60	2.88	0.29	0.00E+0	2.64	6.13	6.13	6.13	0.53	5.26E-2		0.48
CKB	Carbon Regeneration Kiln (Burners)	1.73E-2	1.73E-2	1.73E-2	0.18	0.32	3.92E-2	1.97E-2	0.41	0.41	0.41	4.44	7.69	0.94	0.47	7.56E-2	7.56E-2	7.56E-2	0.81	1.40	0.17	8.64E-2
EW	Electrowinning Cells and Pregnant Solution Tank																					
MR	Mercury Retort																					
MF	Induction Melting Furnace	5.68	5.68	5.68					68.14	68.14	68.14					1.77	1.77	1.77				
EDG1	Camp Emergency Generator (Mfr. Yr. >2007; diesel)	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	2.20E-2	2.20E-2	2.20E-2	0.39	0.71	7.24E-4	0.14
EDG2	Plant Emergency Generator #1 (Mfr. Yr. >2007; diesel)	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	2.20E-2	2.20E-2	2.20E-2	0.39	0.71	7.24E-4	0.14
EDG3	Plant Emergency Generator #2 (Mfr. Yr. >2007; diesel)	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	0.44	0.44	0.44	7.72	14.11	1.45E-2	2.87	2.20E-2	2.20E-2	2.20E-2	0.39	0.71	7.24E-4	0.14
EDFP	Mill Fire Pump (Mfr. Yr. >2009; diesel)	8.82E-2	8.82E-2	8.82E-2	1.54	1.76	2.90E-3	1.76	8.82E-2	8.82E-2	8.82E-2	1.54	1.76	2.90E-3	1.76	4.41E-3	4.41E-3	4.41E-3	7.72E-2	8.82E-2	1.45E-4	8.82E-2
PV	Propane Vaporizer (0.1 MMBtu/hr Propane-Fired)	7.65E-4	7.65E-4	7.65E-4	8.20E-3	1.42E-2	1.74E-3	8.74E-4	1.84E-2	1.84E-2	1.84E-2	0.20	0.34	4.17E-2	2.10E-2	3.35E-3	3.35E-3	3.35E-3	3.59E-2	6.22E-2	7.61E-3	3.83E-3
HS	Strip Circuit Solution Heater (5 MMBtu, Propane-Fired)	3.83E-2	3.83E-2	3.83E-2	0.41	0.71	8.69E-2	4.37E-2	0.92	0.92	0.92	9.84	17.05	2.09	1.05	0.17	0.17	0.17	1.80	3.11	0.38	0.19
H1M	Mine Air Heater #1 (4 MMBtu/hr Propane-Fired)	3.06E-2	3.06E-2	3.06E-2	0.33	0.57	6.95E-2	3.50E-2	0.73	0.73	0.73	7.87	13.64	1.67	0.84	0.13	0.13	0.13	1.44	2.49	0.30	0.15
H2M	Mine Air Heater #2 (4 MMBtu/hr Propane-Fired)	3.06E-2	3.06E-2	3.06E-2	0.33	0.57	6.95E-2	3.50E-2	0.73	0.73	0.73	7.87	13.64	1.67	0.84	0.13	0.13	0.13	1.44	2.49	0.30	0.15
HM	Mill HVAC Heaters (4 x 1.0 MMBtu Propane-Fired)	3.06E-2	3.06E-2	3.06E-2	0.33	0.57	6.95E-2	3.50E-2	0.73	0.73	0.73	7.87	13.64	1.67	0.84	0.13	0.13	0.13	1.44	2.49	0.30	0.15
HAC	Autoclave HVAC Heater (0.25 MMBtu Propane-Fired)	1.91E-3	1.91E-3	1.91E-3	2.05E-2	3.55E-2	4.34E-3	2.19E-3	4.59E-2	4.59E-2	4.59E-2	0.49	0.85	0.10	5.25E-2	8.38E-3	8.38E-3	8.38E-3	8.98E-2	0.16	1.90E-2	9.57E-3
HR	Refinery HVAC Heater (0.25 MMBtu Propane-Fired)	1.91E-3	1.91E-3	1.91E-3	2.05E-2	3.55E-2	4.34E-3	2.19E-3	4.59E-2	4.59E-2	4.59E-2	0.49	0.85	0.10	5.25E-2	8.38E-3	8.38E-3	8.38E-3	8.98E-2	0.16	1.90E-2	9.57E-3
HA	Admin HVAC Heater (0.25 MMBtu Propane-Fired)	1.91E-3	1.91E-3	1.91E-3	2.05E-2	3.55E-2	4.34E-3	2.19E-3	4.59E-2	4.59E-2	4.59E-2	0.49	0.85	0.10	5.25E-2	8.38E-3	8.38E-3	8.38E-3	8.98E-2	0.16	1.90E-2	9.57E-3
HMO	Mine Ops. HVAC Heaters (2 x 0.25 MMBtu Propane-Fired)	3.83E-3	3.83E-3	3.83E-3	4.10E-2	7.10E-2	8.69E-3	4.37E-3	9.18E-2	9.18E-2	9.18E-2	0.98	1.70	0.21	0.10	1.68E-2	1.68E-2	1.68E-2	0.18	0.31	3.81E-2	1.91E-2
HTS	Truck Shop HVAC Heaters (2 x 1.0 MMBtu Propane-Fired)	1.53E-2	1.53E-2	1.53E-2	0.16	0.28	3.48E-2	1.75E-2	0.37	0.37	0.37	3.93	6.82	0.83	0.42	6.70E-2	6.70E-2	6.70E-2	0.72	1.24	0.15	7.66E-2
HW	Warehouse HVAC Heaters (3 x 1.0 MMBtu Propane-Fired)	2.30E-2	2.30E-2	2.30E-2	0.25	0.43	5.21E-2	2.62E-2	0.55	0.55	0.55	5.90	10.23	1.25	0.63	0.10	0.10	0.10	1.08	1.87	0.23	0.11
PSL	Prill Silos Loading (2 x 100 ton)	4.00	1.40	0.21					4.00	1.40	0.21					7.30E-2	2.56E-2	3.87E-3				
PSU	Prill Silos Unloading (2 x 100 ton)	4.00	1.40	0.21					4.00	1.40	0.21					7.30E-2	2.56E-2	3.87E-3				
CS1L	Cement/Shotcrete Silo #1 Loading	58.40	37.60	5.69					58.40	37.60	5.69					21.90	14.10	2.14				
CS1U	Cement/Shotcrete Silo #1 Unloading	9.60E-2	5.60E-2	8.00E-3					0.38	0.22	3.20E-2					0.14	8.40E-2	1.20E-2				
CS2L	Cement/Shotcrete Silo #2 Loading	58.40	37.60	5.69					58.40	37.60	5.69					21.90	14.10	2.14				
CS2U	Cement/Shotcrete Silo #2 Unloading	9.60E-2	5.60E-2	8.00E-3					0.38	0.22	3.20E-2					0.14	8.40E-2	1.20E-2				
CAL	Aggregate Bin Loading	0.69	0.33	5.00E-2					16.56	7.92	1.20					1.73	0.83	0.13				
CAU	Aggregate Bin Unloading	0.69	0.33	5.00E-2					16.56	7.92	1.20					1.73	0.83	0.13				
CM	Central Mixer Loading	11.44	3.12	0.47					45.76	12.48	1.89					17.16	4.68	0.71				

SOURCE DESCRIPTION		OPERATING LIMITS							EMISSION FACTORS								
Model	Source Description	Design Throughput						reference	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SO_2	VOC	unit	reference
ID		unit/hr	unit/day	unit/yr	units	Material	hr/yr										
TG1	Mine Site Gasoline Tank #1			250,000	gal	Gasoline	8,760	(Midas Gold 2016), Table 12-4, annual use.							0.219	lb/hr	EPA Tanks 4.0.9d
TG2	Mine Site Gasoline Tank #2			250,000	gal	Gasoline	8,760	(Midas Gold 2016), Sec. 12.3 (facility-wide tank capacity)							0.219	lb/hr	EPA Tanks 4.0.9d
TD3	Mine Site Diesel Tank #3			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD4	Mine Site Diesel Tank #4			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD5	Mine Site Diesel Tank #5			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD6	Mine Site Diesel Tank #6			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD7	Mine Site Diesel Tank #7			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD8	Mine Site Diesel Tank #8			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD9	Mine Site Diesel Tank #9			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
TD10	Mine Site Diesel Tank #10			725,000	gal	Diesel	8,760	(Midas Gold 2016), (Midas Gold 2018c)							0.002	lb/hr	EPA Tanks 4.0.9d
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	83	2,000	730,000	ton	Aggregate	8,760	(Midas Gold 2019c)	0.0758	0.0277	0.00421					lb/ton	AP-42, Table 11.19.2-2 (08/04): Tert. Crushing - ctrl. × 2 + Screening - ctrl. × 2 + Conv. Transfer - ctrl. × 5
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	83	2,000	730,000	ton	Aggregate	8,760	(Midas Gold 2019c)	0.0758	0.0277	0.00421					lb/ton	AP-42, Table 11.19.2-2 (08/04): Tert. Crushing - ctrl. × 2 + Screening - ctrl. × 2 + Conv. Transfer - ctrl. × 5
TRUE	LIME PRODUCTION																
LS1	Limestone transfer to Primary Crusher Hopper	47.08	1,130	317,907	ton	Limestone	8,760	(Midas Gold 2018d)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS2	Primary Crushing and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4
LS3	Primary Screening and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4
LS4	Secondary Crushing and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.0054	0.0024	0.00036					lb/ton	AP-42, Table 11.19.2-2 (08/04) Tert. Crush - unctrl.; PM2.5 Ch. 13.2.4
LS5	Secondary Screening and Associated Transfers In and Out	47.08	1,130	317,907	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4
LS6	Limestone transfer to Ball Mill Feed Bin	47.08	1,130	317,907	ton	Limestone	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS7	Limestone transfer to Ball Mill Feed Conveyor	47.08	1,130	317,907	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS8	Ball Mill Feed transfer to Ball Mill	47.08	1,130	317,907	ton	Limestone	8,760	0	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LSBM	Limestone Ball Mill	47.08	1,130	317,907	ton	Limestone	8,760		0.404	0.339	0.121					lb/ton	AP-42, Table 11.19.2-4 (08/04) Dry Grind. with Fabric Filter, Assumed 90% BH ctrl
LS9	Limestone transfer to Kiln Feed Bin	11.13	267	82,688	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS10	Limestone transfer to Lime Kiln Feed Conveyor	11.13	267	82,688	ton	Limestone	8,760		0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LS11	Fines Screening and Associated Transfers In and Out	11.13	267	82,688	ton	Limestone	8,760		0.025	0.0087	0.00132					lb/ton	AP-42, Table 11.19.2-2 (08/04) Screening - unctrl.; PM2.5 Ch. 13.2.4
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	11.13	267	82,688	ton	Limestone	8,760	(Midas Gold 2018d)	0.003	0.0011	0.00017					lb/ton	AP-42, Table 11.19.2-2 (08/04) Conv. Xfer - unctrl.; PM2.5 Ch. 13.2.4
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	7.04	169	52,377	ton	Lime	8,760	(Midas Gold 2018d)	1.3	1.3	1.3	0.45	0.24	0.0012		lb/ton	AP-42 Tables 11.17-2, 6 : Gas-Fired Parallel Flow Regenetive Kiln with Fabric Filter (PM = 5x EF), Assumed 90% BH ctrl.
LKC	PFR Shaft Lime Kiln Combustion	22.04	529	163,935	MMBtu	Propane	8,760	Based on 870 kcal/kg (Maerz 2018)	0.00765	0.00765	0.00765	0.0820	0.142	0.01738	0.00874	lb/MMBtu	AP-42, Table 1.5-1 (07/08) Com. Boilers; SO2 - 15.9 gr/100ft^3 & 91,500 Btu/gal
LCR	Lime Mill Crushing and associated transfers In and Out	7.04	169	52,377	ton	Lime	8,760		0.404	0.339	0.121					lb/ton	AP-42, Table 11.19.2-4 (08/04) Dry Grind. with Fabric Filter, Assumed 90% BH ctrl.
LSL	Pebble Lime Silo Loading via Bucket Elevator	7.04	169	52,377	ton	Lime	8,760		0.0088	0.0088	0.0088					lb/ton	AP-42 Table 11.17-4: Crushed Material Conveyor Transfer with Fabric Filter (PM = 10 x EF), Assumed 90% BH ctrl.
LSU	Pebble Lime Silo discharge to Lime Slaker	7.04	169	52,377	ton	Lime	8,760		0.00088	0.00088	0.00088					lb/ton	AP-42 Table 11.17-4: Crushed Material Conveyor Transfer with Fabric Filter, Assumed 90% BH ctrl.
Total																	

SOURCE DESCRIPTION		HOURLY EMISSIONS							DAILY EMISSIONS							ANNUAL EMISSIONS						
Model ID	Source Description	PM lb/hr	PM_{10} lb/hr	$PM_{2.5}$ lb/hr	CO lb/hr	NOx lb/hr	SO_2 lb/hr	VOC lb/hr	PM lb/day	PM_{10} lb/day	$PM_{2.5}$ lb/day	CO lb/day	NOx lb/day	SO_2 lb/day	VOC lb/day	PM ton/yr	PM_{10} ton/yr	$PM_{2.5}$ ton/yr	CO ton/yr	NOx ton/yr	SO_2 ton/yr	VOC ton/yr
TG1	Mine Site Gasoline Tank #1							0.22							5.25							0.96
TG2	Mine Site Gasoline Tank #2							0.22							5.25							0.96
TD3	Mine Site Diesel Tank #3							1.67E-3							4.00E-2							7.30E-3
TD4	Mine Site Diesel Tank #4							1.67E-3							4.00E-2							7.30E-3
TD5	Mine Site Diesel Tank #5							1.67E-3							4.00E-2							7.30E-3
TD6	Mine Site Diesel Tank #6							1.67E-3							4.00E-2							7.30E-3
TD7	Mine Site Diesel Tank #7							1.67E-3							4.00E-2							7.30E-3
TD8	Mine Site Diesel Tank #8							1.67E-3							4.00E-2							7.30E-3
TD9	Mine Site Diesel Tank #9							1.67E-3							4.00E-2							7.30E-3
TD10	Mine Site Diesel Tank #10							1.67E-3							4.00E-2							7.30E-3
PCSP1	Portable Crushing and Screening Plant 1 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	6.32	2.31	0.35					152	55.40	8.42					27.67	10.11	1.54				
PCSP2	Portable Crushing and Screening Plant 2 (2 crushers (primary and secondary), 2 screens (primary and secondary), and 5 conveyor transfers)	6.32	2.31	0.35					152	55.40	8.42					27.67	10.11	1.54				
TRUE	LIME PRODUCTION																					
LS1	Limestone transfer to Primary Crusher Hopper	0.14	5.18E-2	8.00E-3					3.39	1.24	0.19					0.48	0.17	2.70E-2				
LS2	Primary Crushing and Associated Transfers In and Out	0.25	0.11	1.69E-2					6.10	2.71	0.41					0.86	0.38	5.72E-2				
LS3	Primary Screening and Associated Transfers In and Out	1.18	0.41	6.21E-2					28.25	9.83	1.49					3.97	1.38	0.21				
LS4	Secondary Crushing and Associated Transfers In and Out	0.25	0.11	1.69E-2					6.10	2.71	0.41					0.86	0.38	5.72E-2				
LS5	Secondary Screening and Associated Transfers In and Out	1.18	0.41	6.21E-2					28.25	9.83	1.49					3.97	1.38	0.21				
LS6	Limestone transfer to Ball Mill Feed Bin	0.14	5.18E-2	8.00E-3					3.39	1.24	0.19					0.48	0.17	2.70E-2				
LS7	Limestone transfer to Ball Mill Feed Conveyor	0.14	5.18E-2	8.00E-3					3.39	1.24	0.19					0.48	0.17	2.70E-2				
LS8	Ball Mill Feed transfer to Ball Mill	0.14	5.18E-2	8.00E-3					3.39	1.24	0.19					0.48	0.17	2.70E-2				
LSBM	Limestone Ball Mill	19.02	15.96	5.70					456	383	137					64.22	53.89	19.23				
LS9	Limestone transfer to Kiln Feed Bin	3.34E-2	1.22E-2	1.89E-3					0.80	0.29	4.54E-2					0.12	4.55E-2	7.03E-3				
LS10	Limestone transfer to Lime Kiln Feed Conveyor	3.34E-2	1.22E-2	1.89E-3					0.80	0.29	4.54E-2					0.12	4.55E-2	7.03E-3				
LS11	Fines Screening and Associated Transfers In and Out	0.28	9.68E-2	1.47E-2					6.68	2.32	0.35					1.03	0.36	5.46E-2				
LS12	Kiln Feed transfer to PFR Shaft Lime Kiln	3.34E-2	1.22E-2	1.89E-3					0.80	0.29	4.54E-2					0.12	4.55E-2	7.03E-3				
LK	Parallel Flow Regenerative (PFR) Shaft Lime Kiln	9.15	9.15	9.15	3.17	1.69	8.45E-3		220	220	220	76.05	40.56	0.20		34.05	34.05	34.05	11.78	6.29	3.14E-2	
LKC	PFR Shaft Lime Kiln Combustion	0.17	0.17	0.17	1.81	3.13	0.38	0.19	4.05	4.05	4.05	43.36	75.15	9.19	4.62	0.63	0.63	0.63	6.72	11.65	1.42	0.72
LCR	Lime Mill Crushing and associated transfers In and Out	2.84	2.39	0.85					68.28	57.29	20.45					10.58	8.88	3.17				
LSL	Pebble Lime Silo Loading via Bucket Elevator	6.20E-2	6.20E-2	6.20E-2					1.49	1.49	1.49					0.23	0.23	0.23				
LSU	Pebble Lime Silo discharge to Lime Slaker	6.20E-3	6.20E-3	6.20E-3					0.15	0.15	0.15					2.30E-2	2.30E-2	2.30E-2				
Total		**699**	**443**	**102**	**33.50**	**55.37**	**1.88**	**11.51**	**5,964**	**3,786**	**1,316**	**204**	**259**	**37.21**	**34.53**	**565**	**342**	**169**	**30.45**	**37.85**	**6.48**	**4.78**

Appendix C – Modeling Scenario Result Tables

Scenario B1 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	986	723
	1 hour	7,407	3,772
NO_2	1 year	1.8	1.4
	1 hour	116.7	56.2
$PM_{2.5}$	1 year	1.1	0.7
	24 hours	2.8	2.0
PM_{10}	24 hours	11.5	8.4
SO_2	3 hours	1.8	1.2
	1 hour	3.2	2.7

Scenario B2 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	0.7	0.5
	24 hours	2.1	1.5
PM_{10}	24 hours	7.9	7.9
SO_2	3 hours	--	--
	1 hour	--	--

Scenario H1 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	1,023	580
	1 hour	4,884	4,643
NO_2	1 year	1.8	1.4
	1 hour	73.0	53.3
$PM_{2.5}$	1 year	1.1	0.8
	24 hours	3.0	2.1
PM_{10}	24 hours	9.9	9.1
SO_2	3 hours	1.8	1.2
	1 hour	3.2	2.6

Scenario H2 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	2.0	1.3
	24 hours	4.6	3.0
PM_{10}	24 hours	24.5	14.8
SO_2	3 hours	--	--
	1 hour	--	--

Scenario H3 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	1.0	0.7
	24 hours	2.7	2.1
PM_{10}	24 hours	9.3	9.3
SO_2	3 hours	--	--
	1 hour	--	--

Scenario H4 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	1.0	0.7
	24 hours	2.8	2.0
PM_{10}	24 hours	8.9	8.9
SO_2	3 hours	--	--
	1 hour	--	--

Scenario W1 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	6,218	3,516
	1 hour	17,054	9,467
NO_2	1 year	2.3	1.4
	1 hour	114.9	111.0
$PM_{2.5}$	1 year	7.1	4.0
	24 hours	17.2	10.3
PM_{10}	24 hours	116.6	73.6
SO_2	3 hours	1.8	1.2
	1 hour	3.2	2.6

Scenario W2 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	6.1	3.6
	24 hours	14.5	8.8
PM_{10}	24 hours	102.6	62.9
SO_2	3 hours	--	--
	1 hour	--	--

Scenario W3 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	7.0	4.0
	24 hours	17.1	10.3
PM_{10}	24 hours	116.9	73.4
SO_2	3 hours	--	--
	1 hour	--	--

Scenario W4 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	6.0	3.3
	24 hours	14.5	8.6
PM_{10}	24 hours	102.0	62.7
SO_2	3 hours	--	--
	1 hour	--	--

Scenario W5 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	7.7	4.2
	24 hours	18.6	11.0
PM_{10}	24 hours	121.5	75.7
SO_2	3 hours	--	--
	1 hour	--	--

Scenario Y1 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	652	652
	1 hour	5,217	5,217
NO_2	1 year	1.8	1.4
	1 hour	59.8	59.8
$PM_{2.5}$	1 year	0.6	0.6
	24 hours	1.4	1.2
PM_{10}	24 hours	10.0	9.8
SO_2	3 hours	1.8	1.2
	1 hour	3.2	2.6

Scenario Y2 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	2.0	1.2
	24 hours	4.7	3.0
PM_{10}	24 hours	25.3	15.2
SO_2	3 hours	--	--
	1 hour	--	--

Scenario Y3 Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
CO	8 hours	--	--
	1 hour	--	--
NO_2	1 year	--	--
	1 hour	--	--
$PM_{2.5}$	1 year	0.8	0.6
	24 hours	2.2	1.6
PM_{10}	24 hours	10.4	9.9
SO_2	3 hours	--	--
	1 hour	--	--

Scenario B1 TAP Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
Antimony	24 hours	0.0271	0.0208
Arsenic	Annual	0.00008	0.00012
Cadmium	Annual	0.00001	0.00001
Formaldehyde	Annual	0.00076	0.00039
Nickel	Annual	0.00006	0.00004
Sulfuric Acid	24 hours	0.526	0.463

Scenario H1 TAP Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
Antimony	24 hours	0.0270	0.0207
Arsenic	Annual	0.00008	0.00011
Cadmium	Annual	0.00001	0.00001
Formaldehyde	Annual	0.00076	0.00039
Nickel	Annual	0.00006	0.00004
Sulfuric Acid	24 hours	0.526	0.463

Scenario W1 TAP Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
Antimony	24 hours	0.0270	0.0207
Arsenic	Annual	0.00008	0.00011
Cadmium	Annual	0.00001	0.00001
Formaldehyde	Annual	0.00076	0.00039
Nickel	Annual	0.00006	0.00004
Sulfuric Acid	24 hours	0.526	0.463

Scenario Y1 TAP Modeling Results Summary

Pollutant	Averaging Time	Maximum Modeled Concentration (μg/m³)	
		BULKRN	Non-BULKRN
Antimony	24 hours	0.0270	0.0207
Arsenic	Annual	0.00008	0.00011
Cadmium	Annual	0.00001	0.00001
Formaldehyde	Annual	0.00076	0.00039
Nickel	Annual	0.00006	0.00004
Sulfuric Acid	24 hours	0.526	0.463

Appendix D – Electronic Files