February 25, 1997

MEMORANDUM

TO: Orville D. Green, Assistant Administrator
Air & Hazardous Waste

FROM: Martin Bauer, Chief
Air Quality Permitting Bureau

SUBJECT: Issuance of Tier II Operating Permit #037-00001
Thompson Creek Mining Co. - Molybdenum Mining Plant; Clayton

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

FACILITY DESCRIPTION

The Thompson Creek Mining Company (TCMC) facility operates an open pit molybdenum mine and concentrator at Thompson Creek in Central Idaho. Processes at the facility include mining, crushing, grinding, separation by "flotation," dewatering, product packaging and shipping, tailings discharge, and water reclaim. Various support facilities such as a laboratory, maintenance shops, warehouses, sewage treatment also exist.

PROJECT DESCRIPTION

This project involves the issuance of a Tier II Operating Permit (OP) that limits the potential to emit of particulate matter (PM) and oxides of nitrogen from the following equipment located at TCMC's Clayton, Idaho, facility.

Portable Crusher
Primary (Gyratory) Crusher
Overland Conveyor Drive House
East and West Ore Feeders
Holoflite Dryer #1
Pebble Lime Baghouse
Boiler #1
Hot Oil #1 Boiler
Motivator
Mill Auxiliary Generator
Pumpback Generator

This permit also incorporates the requirements of the following permits:

Operating Permit	#0540-0001	issued Feb. 20, 1990;
Permit to Construct	#037-00001	issued Dec. 8, 1992.

This permit also supersedes the following permits:

Operating Permit	#0540-0001	issued Feb. 20, 1990;
Permit to Construct	#037-00001	issued Dec. 8, 1992.
Operating Permit	#0540-0001	issued June 26, 1985;
Permit to Construct	#0540-0001	issued Sept. 29, 1989.

SUMMARY OF EVENTS

DEQ originally received this application as a Tier I OP application on September 29, 1995. The Tier I OP application was deemed complete on November 28, 1995. The Tier I OP application was superseded, however, on March 28, 1996, by the receipt of a Tier II OP application. On July 18, 1996, DEQ deemed the application complete.

On October 4, 1996, a proposed Tier II OP was issued for public comment. The public comment period was from October 18, 1996, through November 18, 1996. On November 18, 1996, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package.

RECOMMENDATIONS

Based on the review of the Tier II OP application materials and of applicable state and federal rules and regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Thompson Creek Mining Company's Clayton facility be issued a Tier II OP. Staff members also recommend that the facility be notified in writing of the obligation to pay permit application fees for the Tier II OP.

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cc: J. Johnston, Idaho Falls Regional Office
OP File Manual
Source File
COF

February 25, 1997

MEMORANDUM

TO: Martin Bauer, Chief
Air Quality Permitting Bureau
Air & Hazardous Waste

FROM: Almer B. Casile, Air Quality Engineer ABC
Air Quality Permitting Bureau
Operating Permits

THROUGH: Susan J. Richards, Air Quality Permits Manager
Air Quality Permitting Bureau
Operating Permits

SUBJECT: Technical Analysis for Tier II Operating Permit #037-00001
Thompson Creek Mining Company - Molybdenum Mining Plant; Clayton

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits.

FACILITY DESCRIPTION

The Thompson Creek Mining Company (TCMC) facility operates an open pit molybdenum mine and concentrator at Thompson Creek in Central Idaho. Processes at the facility include mining, crushing, grinding, separation by "flotation," dewatering, product packaging and shipping, tailings discharge, and water reclaim. Various support facilities such as a laboratory, maintenance shops, warehouses, sewage treatment also exist.

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Permit to Construct	#0540-0001	issued Sept. 29, 1989.

SUMMARY OF EVENTS

DEQ originally received this application as a Tier I OP application on September 29, 1995. The Tier I OP application was deemed complete on November 29, 1995. The Tier I OP application was superseded, however, on March 28, 1996, by the receipt of a Tier II OP application. DEQ deemed this application incomplete on April 15, 1996. DEQ received a response to the incompleteness letter on May 16, 1996. The facility faxed information to DEQ on June 14, 1996. DEQ received the hardcopy of the information on June 17, 1996. On July 18, 1996, DEQ deemed the application complete.

On October 4, 1996, a proposed Tier II OP was issued for public comment. The public comment period was from October 18, 1996, through November 18, 1996. On November 18, 1996, DEQ received comments about the content of the proposed OP. These comments were addressed by DEQ in the response package.

DISCUSSION

1. Area Classification

The facility is located in Clayton, Idaho, which is classified as attainment or unclassifiable for all criteria pollutants.

2. Emission Estimates

Original emission estimates used to draft the proposed permit were given in the units of pound per hour and ton per year. The short term emission estimates were then changed in response to comments submitted during the public comment period. Annual emission estimates were originally provided by the facility's consultant, Brown & Caldwell. These estimates can be found in the application. Emission estimates were determined by the reviewing engineer and can be found in Appendix A.

Emission estimates for all equipment listed in Appendix A, except Holoflite Dryer #1 & #2, Jet Mill and Packaging Area, Super Fine Grade Molybedenum, and Pebble Lime Baghouse, were originally determined using AP42 emission factors. Holoflite Dryer #1's particulate matter (PM) emission factor was originally determined "by scaling the measured emission rate, as determined during a September 29, 1992, particulate matter emission test, by a factor equal to the ratio of the dryer's maximum capacity to the actual production rate at the time of the test (See Appendix)." It should be noted that the determination of the Holoflite Dryer #1's PM emission factor relies on the linear relation of emissions to production. In order to verify this relationship and thus ensure continuous compliance, the facility originally requested a PM emission rate limit eight (8) times greater than the estimated emission rate. The requested emission rate limit was then superseded when the facility requested a daily emission rate limit with an accompanying daily throughput limitation.

It should be noted that the application contained annual emission limits that included a factor of safety determined by the facility. The factor of safety, as explained by Brown & Caldwell, had been included in the limits to ensure that the facility would be in continuous compliance with the requested values. As submitted during the public comment period, TCMI requested that the East and West Ore Feeders daily throughput be changed to 40,000 pounds per day, and the annual hours of operation of each of the feeders be changed to 8760 hours. This request changed the East and West Ore Feeders's original requested short- and long- term emission limits. Annual emissions were determined by multiplying the 40,000 pounds per day, 365 days per year, and the emission factor together. The resulting product was then converted to tons per year. Consequently, the Permit now states the associated annual throughput, the result of multiplying 40,000 pounds per day by 365 days per year.

Please note that short- and long-term emission limits for the Rotary Kiln and Holoflite Dryer #2 and the Jet Mill and Packaging Area were incorporated from the existing PTC. The associated monitoring and recordkeeping in these sections of the Permit were taken directly from existing PTCs for these pieces of equipment. Some additional language may have included to gap fill certain initial compliance requirements, or to gap fill operating requirements in order to assure federal enforceability.

All operating requirements included in this Permit that limit material throughput, hours of operation, and/or fuel usage are provided as surrogates to the emission limits included in Appendix A of the Permit. All operating requirements given in this OP that deal directly with control equipment are meant to ensure that the control equipment operates at the claimed control efficiency used by the Permittee to estimate emissions in the application. This is of consequence because failure to operate at the claimed control efficiency may result in noncompliance. All operating requirements given in this Permit that deal directly with maintenance to process equipment are meant to ensure that the equipment is properly maintained and that operation will not cause an opacity or emissions violation. The term "daily" in this Permit refers to the time period beginning at 12:00am and ending at 11:59pm.

Facility Classification

Without federally enforceable permit conditions, this facility would be considered major for NO_x and PM, as defined in IDAPA 16.01.01.006.54. The facility is no longer considered major, however, because the proposed permit limits the facility's potential to emit below 100 T/yr for NO_x and PM. The facility is not a designated facility, as defined in IDAPA 16.01.01.006.25. The facility is a semiconductor manufacturing facility (SIC 3674).

Regulatory Review

This Tier II OP is subject to the following permitting regulations:

IDAPA 16.01.01.006	Definitions;
IDAPA 16.01.01.401	Tier II Operating Permit;
IDAPA 16.01.01.402	Application Procedures;
IDAPA 16.01.01.403	Permit Requirements;
IDAPA 16.01.01.404	Procedure for Issuing Permits;
IDAPA 16.01.01.405	Conditions for Tier II Operating Permit;
IDAPA 16.01.01.406	Obligation to Comply;
IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits;
IDAPA 16.01.01.525	Registration and Registration Fees; and
IDAPA 16.01.01.625	Visible Emissions Limitations;

AIRS

The abbreviated AIRS data entry sheet is located in Appendix B.

FEES

This facility is not a major facility as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees, in accordance with IDAPA 16.01.01.526, are not applicable. Permit application fees, in accordance with IDAPA 16.01.01.470 are, however, applicable.

RECOMMENDATIONS

Based on the review of the Tier II OP application materials and of applicable state and federal rules and regulations concerning the permitting of air pollution sources, the Bureau staff recommends that Thompson Creek Mining Company's Clayton facility be issued a Tier II OP. Staff members also recommend that the facility be notified in writing of the obligation to pay permit application fees for the Tier II OP.

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Attachment

cc: J. Johnston, Idaho Falls Regional Office
Source File
COF

APPENDIX A

Estimated Emissions

FACILITY: Thompson Creek Mining
MAILING ADDRESS: P.O. BOX 62
CITY/STATE/ZIP: Clayton, Idaho 83227

NO_x

Source	Process Parameter	EF	Operating Schedule	Emission Rate (lb/yr)	(tons/yr)	(lb/day)	(lb/hr)
Boiler #1	13.5 (gal/hr)	0.02 (lb/1000 gal)	8760 hr/yr	2365.2	1.18	6.48	0.27
Oil Heater	33 (gal/hr)	0.02 (lb/1000 gal)	8760 hr/yr	5781.6	2.89	15.84	0.66
Motivator	1490 (hp)	0.024 (lb/hp-hr)	3000 hr/yr	107280	53.64	858.24	35.76
Mill Auxiliary Generator	285 (hp)	0.031 (lb/hp-hr)	500 hr/yr	4107.5	2.05	197.16	8.215
Pumpback Generator	450 (hp)	0.031 (lb/hp-hr)	500 hr/yr	6975	3.49	334.8	13.95
Total					63.25		

Note: Because emissions from the Boiler #1 and Oiler Heater are emitted through a common stack, the NOx emissions were combined and divided by the hours of operation, 8760, to determine a pound per hour rate.

Particulate Matter

Source	Process Parameter			EF	Control Equipment Efficiency	Operating Schedule	Calculated Emission Rate (lb/yr)	(tons/yr)	(lb/day)	(lb/hr)[1]
Primary Crusher, S-C1	16,242,500 tons/yr	78000 tons/day	4450 tons/hr	0.5 (lb/ton)	0.99	N/A	81212.5	40.61	390	22.25
Conveyor Drive House, St-T1	16,242,500 tons/yr	78000 tons/day	4450 tons/hr	0.12 (lb/ton)	0.99	N/A	19491	9.75	93.6	5.34
East and West Ore Feeders, S-F1 & S-F2 respectively	14,600,000 tons/yr	40000 tons/day	4450 tons/hr	0.12 (lb/ton)	0.99	365 day/yr	17520	8.76	48	48
Holoflite Dryer #1, S-D1	81030 tons/yr	160 tons/day	9.25 tons/hr	4.93 (lb/ton)	0.75, 0.99	8760	998.6948	0.50	1.972	0.1140063
Holoflite Dryer #2, S-D2	N/A	N/A					222	0.11	N/A	N/A
Jet Mill and Packaging Area	N/A	N/A					630	0.32	N/A	N/A
Pebble Lime Baghouse, S-PL1[1]	5000 tons/yr		6.5 tons/hr	2.2 (lb/ton)	0.99 N/A		110	0.06	N/A	0.143
Boiler #1, S-B1	13.5 (gal/hr)			2 (lb/1000 gal)		8760	236.52	0.12	N/A	0.027
Oil Heater, S-B2	33 (gal/hr)			2 (lb/1000 gal)		8760	578.16	0.29	N/A	0.066
Motivator, S-AX1	1490 (hp)			0.0620 (lb/MMBtu)		3000	704.6285	0.35	N/A	0.2
Mill Auxiliary Generator	285 (hp)			2.2 (lb/hp-hr)		500	291.5	0.15	N/A	0.583
Pumpback Generator	450 (hp)			2.2 (lb/hp-hr)		500	495	0.25	N/A	0.99
								81.25		

Notes:

[1] Emission factor for the Pebble Lime Baghouse was accepted because comparison with the continuous drop emission factor revealed that 2.2 lb/ton with a 99% control would be highly conversation.

APPENDIX B

ABBREVIATED AIRS DATA ENTRY SHEET

Name of Facility:	Thompson Creek Mining Company
AIRS/Permit #:	037-00001
Permit Issue Date:	

Source/Emissions Unit Name (25 spcs) (Please Use Name As Indicated In Permit)	SCC # (8 digit #)	Air Program (SIP/NESHAP/NSPS/PSD)
Portable Crusher, S-C2	30301101	SIP
Primary Crusher, S-C1	30301101	SIP
Conveyor Drive House, S-T1	30301101	SIP
East and West Ore Feeders, S-F1 & S-F2	30301101	SIP
Holoflite Dryer #1, S-D1	30301199	SIP
Pebble Lime Baghouse, S-PL1	30301101	SIP
Boiler #1 & Oil Heater (S-B1 & S-B2) Common Stack	10300501	SIP
Motivator, S-AX1	30301199	SIP
Mill Auxiliary Generator	30301199	SIP
Pumpback Generator	30301199	SIP
Lube Grade Dryer Stack	30301199	SIP NSPS
Jet Mill Baghouse Stack	30301199	SIP NSPS
Mill Feed Bin	30301199	SIP
"Super Fine" Molybdenum Storage Bin	30301199	SIP NSPS
Storage Bin Baghouse	30301199	SIP

Response to Comments and Questions Submitted During a Public Comment Period on Thompson Creek Mining Company (Clayton) Proposed Tier II Operating Permit (OP) for the Entire Facility

I. INTRODUCTION

A public comment period on Thompson Creek Mining facility's permit application and proposed operating permit was held from October 18, 1996, through November 18, 1996. The application was submitted in order to permit the facility as a synthetic minor source. Information was made available to the public at the Challis Public Library and DEQ Central Office in Boise. Comments and questions were received by the Department of Health and Welfare, Division of Environmental Quality (DEQ), in the form of written comments submitted to DEQ.

Public comments which concern air quality aspects of the facility application and proposed Permit have been summarized below. Each comment is numbered and followed by DEQ's response. Some comments have been combined and paraphrased in order to eliminate duplication and provide a clearer summary. Responses discuss only the facts necessary to address the comment. An appendix is provided which lists the name of each person who provided the comments.

Only comments, questions, and suggestions specifically pertaining to the proposed permit and the permit application are addressed in this document.

II. COMMENTS AND RESPONSES

Comment ##1: Request to change the description of the location of the facility.

DEQ's Response: The requested change has been incorporated into the proposed permit.

Comment #2: Request that the operating throughput limitation in Section 2.1, the Primary Crusher, be changed 78,000 tons per day.

DEQ's Response: The appropriate operating requirement has been changed to accommodate the request. However, because compliance with the long term emission limit was established using a combination of the short term operating requirement and the annual hours of operation, the Permit now explicitly states the long term operating requirement with which the associated emission limit was determined.

Comment #3: Request that the recording requirement in Section 3.1, Primary Crusher, be changed to tons per day.

DEQ's Response: The requested change has been incorporated into the proposed permit.

Comment #4: Request that the operating throughput limitation in Section 2.1, the Overland Conveyor Drive House, be changed to 78,000 tons per day.

DEQ's Response: DEQ has reviewed the requested change and incorporated it into the proposed permit. However, because compliance with the long term emission limit was established using a combination of the short term operating requirement and the annual hours of operation, the Permit now explicitly states the long term operating requirement with which the associated emission limit was determined.

Comment #5: Request that the recording requirement in Section 3.1, Overland Conveyor Drive House, be changed to tons per day.

DEQ's Response: DEQ has reviewed the requested change and incorporated it into the proposed permit.

Comment #6: Request that the operating throughput limitation in Section 2.1, East and West Ore Feeders, be changed to 40,000 tons per day.

DEQ's Response: **DEQ has reviewed the requested change and incorporated it into the proposed permit. However, because compliance with the long term emission limit was established using a combination of the short term operating requirement and the annual hours of operation, the Permit now explicitly states the long term operating requirement with which the associated emission limit was determined.**

Comment #7: Change annual hours of operation in Section 2.2, East and West Ore Feeders, from a combined 3650 hours for the East and West Ore Feeders to 8760 for each.

DEQ's Response: **The requested change has been incorporated into the Permit. The long term emission limit has also been changed ,however, to accommodate the request.**

Comment #8: Request that the operating requirement in Section 2.3, East and West Ore Feeders, be changed to reflect that Ducon scrubbers are currently in place, not a baghouse.

DEQ's Response: **The Permit has been changed as requested. The facility's request , however, necessitated a change in the how the emission limits was determined. The short and long term emission limits, consequently, have been modified.**

Comment #9: Request that the recording requirement in Section 3.1, East and West Ore Feeders, be changed to tons per day.

DEQ's Response: **The Permit has been changed as requested.**

Comment #10: Request that the operating throughput limitation in Section 2.1, Holoflite #1, be changed to 160 tons per day.

DEQ's Response: **DEQ has reviewed the requested change and incorporated it into the proposed permit. However, because compliance with the long-term emission limit was established using a combination of the short-term operating requirement and the annual hours of operation, the Permit now explicitly states the long term operating requirement with which the associated emission limit was determined.**

Comment #11: Request that the operating requirement in Section 2.2, Holoflite #1, be changed to reflect that a venturi scrubber and electrostatic precipitator (ESP) are currently in place, not just an ESP.

DEQ's Response: **The Permit has been changed as requested. The facility's request , however, necessitated a change in the how the emission limits were determined. The short- and long-term emission limits, consequently, have been modified.**

Comment #12: Request that the recording requirement in Section 3.2, Holoflite #1, be changed to tons per day.

DEQ's Response: **The Permit has been changed as requested.**

Comment #13 Request that the operating requirement in Section 2.1, Holoflite #2 and Rotary Kiln, be changed to reflect that a venturi scrubber and electrostatic precipitator (ESP) are currently in place, not just the venturi scrubber.

DEQ's Response: **DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.**

Comment #14: Request that the operating throughput limitation in Section 2.2, Holoflite #2 and Rotary Kiln, be changed to 45,000 pounds per day.

DEQ's Response: DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.

Comment #15: Request that the recording requirement in Section 3.4, Holoflite #2 and Rotary Kiln, be changed to tons per day.

DEQ's Response: DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.

Comment #16: Request that the operating throughput limitation in Section 2.1, Jet Mill and Packaging Area, be changed to 60,000 pounds per day.

DEQ's Response: DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.

Comment #17: Request that the recording requirement in Section 3.1, Jet Mill and Packaging Area, be changed to tons per day.

DEQ's Response: DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.

Comment #18: Request that the operating throughput limitation in Section 2.1, Super Fine Grade Molybdenum, be changed to 3,120 pounds per day.

DEQ's Response: DEQ cannot accept comments regarding this section of the Permit during this public comment period. This section was incorporated into the Permit from a PTC to construct issued to the facility. Any request to change this section should be handle by submitting an application to modify the PTC language.

Comment #19: Change operating throughout limitation in Section 2.1, Pebble Lime Baghouse, to 6.5 ton per hour.

DEQ's Response: The Permit has been changed to accommodate the request.

Comment #20: Change monitoring requirement in Section 3.1, Pebble Lime Baghouse, to calculate process rate by dividing amount of material conveyed to the bin by the length it takes to unload to the delivery transport.

DEQ's Response: Section 3.1 currently calculates ton of material processed per hour as requested. The Permit, however, has been changed to state that it is the Pebble Lime Baghouse that processes (i.e., transports) the material, not the Lime Storage Silo.

Comment #21: Request that Boiler #1, Hot Oil Boiler, Motivator, Mill Power, and Pump Back Power be exempted from IDAPA 16.01.01.625.

DEQ's Response: DEQ cannot accomodate the request. Please note, however, that the Permit requires the Permittee to monitor, or the supplier to verify the maximum sulfur content by weight. The Permit has been modified to more clearly convey this meaning.