# Preliminary Decision

ADDITION OF ONE NEW BOILER AT MOLYCORP MINERALS, LLC, MOUNTAIN PASS, CALIFORNIA

## A. Introduction

### *1. Application and Setting*

The Mojave Desert Air Quality Management District (District) received the Mill Interim Boiler Permit Application package for a new boiler with selective catalytic reduction (SCR) system proposed for the Molycorp Minerals, LLC (herein after Molycorp) facility located at Mountain Pass, California in October 2011.[1] The application proposed the addition of two new permit units, a diesel fired boiler and an SCR system to control the $NO_x$ emissions from the boiler. The proposed boiler will provide the necessary process steam for operations at the Mill and Flotation Plant on an interim basis until turbines 1 and 2 associated with the recently permitted and currently under construction Combined Heat and Power (CHP) Plant have been installed and can supply the necessary steam.

The new boiler will be located at the current Molycorp plant (facility 00364) located at Mountain Pass, California. The boiler will be located in the northern portion of the facility approximately 1,800 feet northwest from the location where the CHP plant is to be built. Emissions from this equipment installation do not constitute a major modification to the Molycorp facility nor do they require offsets because there is a facility wide emissions cap.

Pursuant to Rule 1302(D)(1), the District is issuing this preliminary decision/determination on the application. As required by District Rule 1302, this document will review the proposed equipment, evaluating worst-case or maximum air quality impacts and establishing control technology requirements and related air quality permit conditions and will determine required emissions offsets and emissions reductions credits. This document represents the preliminary pre-construction compliance review of the proposed project, to determine whether construction and operation of the proposed project will comply with all applicable District rules and regulations.

### *2. Description of Project*

Molycorp proposes to construct and operate this boiler on a temporary basis to provide process steam to the Mill and Flotation Plant until turbines 1 and 2 of the CHP plant are operational at which time the temporary boiler will be removed and the two turbines will supply the necessary steam. The application proposes to use the equipment up to 24 hours per day and 8,760 hours per year however the boiler will only be used on an interim basis until two turbines associated with the CHP plant are operational, this is anticipated to occur in 2011. The proposed equipment will include the following:

- One (1) diesel fired boiler, 83 MMBtu/hr (HHV)
- One (1) SCR system

[1] Application cover letter from David Weaver, (ENVIRON) and Doug Daugherty (ENVIRON) to C. Collins (MDAQMD), October, 2011.

## B. Criteria and Toxics New Source Review Analysis

### *1. Maximum Annual Emissions*

Maximum annual criteria emissions are calculated assuming maximum permitted activity.

Table 1: Maximum Annual Boiler Criteria Emissions

| | NOx | VOC | SOx | PM10 | CO |
|---|---|---|---|---|---|
| Tons/Year | 18.9 | 1.5 | 0.6 | 10.9 | 13.6 |

Table 2: Maximum Annual Facility Criteria Emissions

| | NOx | VOC | SOx | PM10 | CO |
|---|---|---|---|---|---|
| Facilitywide Emissions shall be less than (Tons/Year) | 42 | 25 | 25 | 46 | 100 |

The facility emissions for $NO_x$ and $PM_{10}$ are over the major source thresholds pursuant to New Source Review Rules 1301(DD) and 1303(B). The facility is located in a federal ozone attainment area. The federal major facility emissions thresholds for criteria pollutants pursuant to Rule 1201(S)(2) that apply are 100 tons per year of any air pollutant or 10 tons per year of any HAP or 25 tons per year of any combination of HAPs. The facility $CO_2$ emissions will be at or above the federal major facility threshold once the CHP plant is operational therefore the facility will be required to have a Title V permit within 12 months from that time. The facility emissions of all criteria pollutants, including those from the proposed project are below the threshold for Title V facilities.

The proposed equipment is not anticipated to be operated concurrently with the turbines associated with the CHP plant except during an interim commissioning period. Operation of the proposed equipment is expected to overlap for some time with the operation of the Crack Phase 1A Interim Boiler.[2] The emissions associated with the CHP plant (Stage I) and process upgrades (Stage II) were previously offset and the facility emissions have been capped based on those offsets for $NO_x$ and $PM_{10.}$ Additionally, the facility emissions have been capped at the offset thresholds of VOC, $SO_x$ and CO. Emissions from the proposed boiler and associated SCR system do not exceed the facility cap based on 8,760 hours of operation per year. The facility is required by permit condition to maintain emissions at or below the specified cap.

Rule 1310(D)(2)(a) specifies the emissions thresholds for federal major modifications. A federal major modification would be a project that has a net emissions increase of a regulated NSR pollutant above the specified number of tons per year specified in the rule. The proposed project does not yield a net emissions increase because the boiler and CHP plant turbines would only be operated concurrently during a commissioning period and because the facility emissions cap is in place.

**Please note**: more detailed project and permit unit emissions calculations are presented in the Appendix

[2] MDAQMD Final Decision Document for the Addition of One New Boiler at Molycorp Minerals LLC, October, 2011.

## 2. Control Technology Evaluation

Best Available Control Technology (BACT):

Rule 1303(A)(1) *"Any new Permit Unit which emits, or has the Potential to Emit, 25 pounds per day or more of any Nonattainment Air Pollutant shall be equipped with BACT."*

Rule 1303(A)(3) *"Any new or Modified Facility which emits, or has the Potential to Emit, 25 tons per year or more of any Nonattainment Air Pollutant shall be equipped with BACT for each new Permit Unit."*

Because the facility is a major emissions source of $NO_x$ and $PM_{10}$ and because emissions from the proposed equipment exceed 25 lb per day for both $NO_x$ and $PM_{10}$ which are federal or state non-attainment air pollutants or precursors to federal or state non-attainment air pollutants within the MDAQMD[3], the proposed project must employ BACT/Lowest Achievable Emission Rate (LAER).

The MDAQMD defines BACT (Rule 1301(K)(2)) for a major facility as the most stringent emission limitation or control technique that:

- The most stringent emission limit or control technique which has been achieved in practice, for such permit unit class or category of source; or
- Any other emission limitation or control technique, and/or different fuel demonstrated in practice to be technologically feasible and cost-effective by the APCO or by CARB.

The applicant proposes to meet BACT for the proposed emissions units and has submitted a BACT analysis that evaluates the control technology for these pollutants. The MDAQMD has determined that the proposed emission limits meet BACT and are compliant with all applicable air quality regulations.

***Table 3: BACT for proposed 83 MMBtu/hr diesel fired boiler***

| Pollutant | Control | Limit |
|---|---|---|
| NOx | SCR/LNB/FGR/GCP | 40 ppm |
| VOC | SCR | |
| PM | GCP | |
| SOx | ultra low sulfur diesel | |
| CO | SCR/LNB/FGR/GCP | 50 ppm |
| NH3 | | 10 ppm |

BACT emission limits for boilers rated <100 MMBtu was determined to be 9 ppmv for $NO_x$ and 50 ppmv for CO. This determination was based on similarly sized natural gas fired boilers recently permitted within the MDAQMD. BAAQMD BACT Guidelines define BACT for boilers as specific technology which includes SCR, LNB, FGR, natural gas fuel and good combustion practices. The class and category for the proposed equipment has been defined as diesel fired boilers rated <100

[3] http://www.arb.ca.gov/desig/adm/adm.htm

MMBtu. The applicant has sufficiently justified diesel as the fuel choice necessary to complete the project. Natural gas access is estimated to be available at the facility in 2012 and the CHP plant turbines are permitted to operate on PUC quality natural gas. The purpose of this temporary boiler is to provide process steam until the CHP Plant turbines are complete and operational, which cannot happen until natural gas is available. As the turbines are not constructed nor is natural gas available, alternative fuel choices were considered. Propane was considered as a fuel choice but was rejected due to lead time to obtain the necessary tanks and fuel and due to safety concerns as the plant is undergoing major construction and process revisions. Use of diesel fuel to operate the proposed boiler was selected because it is available whereas the other fuel types are not without significant lead time and because of the applicant's safety concerns. Further USEPA Guidance regarding BACT states that BACT does not need to include control options "that would fundamentally redefine the nature of the source proposed by the permit applicant. BACT should generally not be applied to regulate the applicant's purpose or objective for the proposed facility." In this case requiring the applicant to alter their fuel choice would regulate the applicant's objective. South Coast Air Quality Management District (SCAQMD) BACT Guidelines indicate that when fuel oil must be used in place of a fuel that produces air emissions equivalent to or lower than natural gas, the use of these fuel oils must meet the requirements of SCAQMD district rules. The proposed use of ultra low sulfur diesel with less than 0.0015% sulfur by weight meets this requirement. The Bay Area Air Quality Management District (BAAQMD) BACT Guidelines also defines achieved in practice BACT for boilers combusting emergency backup fuel oil used during natural gas curtailment as the use of low sulfur fuel.

The proposed boiler has SCR, LNB, FGR and will be operated using ultra low sulfur diesel fuel and with good combustion practices. The District has determined that the proposed equipment meets the BACT requirements for the class and category of equipment.

This boiler is subject to 40 CFR 60 Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" and to 40 CFR 63 Subpart JJJJJJ "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers".

***BACT for each SCR System***

This unit is a control device and reduces $NO_x$ from the boiler stack emissions whereby the emissions meet the BACT requirements.

### 3. PSD Class I Area Visibility Protection

The Clean Air Act (CAA) established the Prevention of Significant Deterioration (PSD) permit program to prevent areas that currently have clean air from significant deterioration. The PSD permit program limits emissions by requiring permits for major stationary air pollution sources. The program applies to sources that will have the potential to emit "major" and "significant" amounts of air pollution for any criteria pollutant. It also applies to an existing source that plans to modify operations such that the modification leads to increases of air pollution that will be "major" or "significant". In this context "Major" means emitting or having the potential to emit 100 tons per year (tpy) or more of any criteria pollutant for the specific source categories listed in the PSD

regulations. There are 28 listed source categories, which include fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input. If a source does not fall into one of the listed source categories, then a threshold of 250 tpy applies. In cases where individual equipment falls within a listed source category, but the facility as a whole does not, then major source/major modification status with respect to PSD is determined by comparing emissions from the listed equipment to the 100 tpy threshold and emissions from the facility as a whole to the 250 tpy threshold.

The existing facility does not fall within one of the listed source categories, and is considered an existing non-major source under the PSD program since emissions are below 250 tpy. The proposed equipment does fall into one of the 28 identified source categories, but emissions from the proposed equipment will be below 100 tpy for all criteria pollutants and the facility emissions including those from the proposed project will remain less than 250 tpy. Additionally, there are no class I areas within 100 kilometers (62 miles) of the proposed project site. A Class I area visibility protection analysis is not required for this action.

## 4. Air Quality Impact Analysis

For the purposes of state and federal air quality planning, the project location within the MDAQMD is in state and federal attainment for $NO_2$, CO and VOC. The proposed project is a source of $NO_x$ emissions including $NO_2$. EPA recently established a new one hour $NO_2$ standard at a level of 188.68 ug/$m^3$. Although the boiler shall not be operated concurrently with the turbines associated with the CHP plant except during the turbine commissioning period ambient air quality standard impact analyses was conservatively performed for $NO_2$ emissions from the proposed boiler plus those from the CHP power train.

*Table 4 – Maximum Ambient Air Quality $NO_2$ Impact*

| Pollutant | Project Impact | Background | Total Impact | Federal Standard | State Standard |
|---|---|---|---|---|---|
| | *All values in $\mu g/m^3$* | | | | |
| $NO_2$ (annual) | 0.8 | 11 | 12 | 100 | 57 |
| $NO_2$ (1 hour Tier III) | 43 | 117 | 160 | 188 | 339 |

### *Findings*

The impact analysis calculated a maximum incremental increase for $NO_2$ for each applicable averaging period, as shown in Table 4 above. When added to the maximum recent background concentration obtained from the Trona air monitoring station, the proposed project does not exceed the most stringent (or lowest) standard for $NO_2$. The modeling results demonstrate that the $NO_2$ AAQS will not be exceeded due to emissions from the proposed project.

### *Inputs and Methods*

Maximum emissions were modeled for the proposed Mill boiler, the Crack Phase 1A Interim Boiler, and four power blocks at the CHP Plant consisting of emissions from a shutdown plus an hour of operation at full load. Three years surface data was provided by the applicant from their on-site

meteorological station, and upper air data was obtained from representative sources. This data was supplemented with surface observations from Henderson Executive Airport (the nearest offsite station) during hours when the Molycorp on-site data was missing or invalid. Upper air data from Reno, Nevada was used because of similarities to the location of the Molycorp facility. The Reno station is located east of the Sierra Nevada Mountain range, above 4,500 feet elevation. All meteorological data used in the model were assembled from the years 2007, 2008, and 2009. The upper air station at the Desert Rock Airstrip was considered for use in modeling, but it lacked sufficient data for the modeling years however mixing heights were determined from Desert Rock, Nevada data. For determining $NO_2$ impacts using a $NO_x$ background, offsite $NO_2$ concentrations using the American Meteorological Society/Environmental Protection Agency regulatory air dispersion model (AERMOD) Plume Volume Molar Ratio Method (PVMRM) was used. The dispersion modeling was performed according to USEPA requirements.

Only a portion of $NO_x$ emissions coming from the equipment stack is $NO_2$. $NO_x$ is converted to $NO_2$ in the atmosphere as it reacts with ozone. Modeling analysis was conducted with a Tier III approach which is EPA's recommended procedure. In order to determine compliance with the short-term averaging period, the 3-year average of the 98$^{th}$ percentile of daily maximum 1-hour averages recorded in the model output were calculated. As modeled, the proposed project does not exceed the most stringent (or lowest) standard for $NO_2$.

The MDAQMD approves of the analysis methods used in these impact analyses and the findings of these impact analyses.

## 5. Toxic Impact Assessment

In accord with District Rule 1320, New Source Review For Toxic Contaminants, at a minimum a State Toxic New Source Review Program Analysis (State T-NSR), including an Emission unit prioritization Score that must be established by the MDAQMD.

Table 5 – Prioritization Scores:

| | Cancer | Acute | Chronic | Non-Cancer |
|---|---|---|---|---|
| Crushing and Paste Tailings Plants | .031 | .002 | .108 | .108 |
| Remaining Facility | 2.397 | 1.102 | 1.002 | 1.598 |
| Total | 2.428 | 1.104 | 1.110 | 1.706 |

The prioritization scores are based on MDAQMD default emission factors for boilers. The score pertaining to cancer risk is 2.428 which categorizes this project as Intermediate Priority pursuant to Rule 1320(C)(12). Pursuant to Rule 1320, Health Risk Assessments (HRA) are required for High Priority facilities with prioritization score of 10 or more. Because all of this project's resulting prioritization scores are less than 10, and because the proposed project is located approximately one mile (approximately 5,250 feet NE) from the nearest residence and is 2,500 feet SW from the nearest facility fence line, a HRA was not required by the District. The maximum non-cancer chronic and acute hazard prioritization scores are both less than the significance level of 10 (1.110 and 1.104, respectively). Facility HAP emissions are limited by permit condition to less than 10 tons per year of every single HAP and 25 tons per year of any combination of HAPs, therefore a health risk

assessment is not required for this project (Rule 1320(E)(2)(b)). Federal T-NSR is also applicable to area sources of HAPs subject to a federal regulation such as a MACT standard. Applicable federal regulatory requirements for the boiler have been applied to the affected permit units. Rule 1320 sets forth the requirements for State T-NSR. The total HAPs and TACs were calculated based on MDAQMD emission factors. The State T-NSR requirements of Rule 1320 further require that the District apply any applicable State ATCM to the proposed project. There is no State ATCM which applies to the proposed equipment.

Please refer to the appendix for detailed HAP/TAC emissions.

**6. Offsets**

MDAQMD Regulation XIII – *New Source Review* requires offsets for PTE emissions increases of any regulated air pollutant, and their precursors, in an amount greater than or equal to the thresholds outlined in 1303(B)(1). The proposed project will not result in PTE emissions increases and the facility emissions are limited by permit condition with the emissions above the major source threshold having been previously offset. The proposed project does not require an emissions offset analysis.

**7. Rules and Regulations Applicable to Project**

Selected MDAQMD Rules and Regulations will apply to the proposed project:

Rule 201 – *Permits to Construct;* requires that a person shall not build, erect, install, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer. The applicant has submitted the required permit applications for all equipment units which are part of the proposed project and which are not exempt pursuant to Rule 219.

Rule 203 – *Permit to Operate;* requires that person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written permit from the Air Pollution Control Officer. Molycorp has submitted the required permit applications.

Rule 212 – *Standards for Approving Permits;* establishes baseline criteria for approving permits by the MDAQMD for proposed projects. In accordance with these criteria, the proposed project satisfies the required emission limits through the Preliminary Decision Document and complying with stringent emission limitations set forth on permits.

Rule 219 – *Equipment Not Requiring a Permit;* describes specific equipment which does not require a permit. Any other equipment, the use of which may cause the issuance of air contaminants or the use of which may reduce or control the issuance of air contaminants requires a valid permit to operate.

Rule 222 – *Limitations on Potential to Emit;* this rule creates federally enforceable limits on the potential to emit for facilities as defined in 1201(M) which would have the potential to emit air contaminants in excess of the threshold for a major facility.

Rule 401 – *Visible Emissions* limits visible emissions opacity to less than 20 percent (or Ringlemann No. 1). In normal operating mode, visible emissions are not expected to exceed 20 percent opacity.

Rule 402 – *Nuisance* prohibits facility emissions that cause a public nuisance. The proposed equipment is not expected to generate a public nuisance due to the applicable opacity limits and the remoteness of the facility.

Rule 403 – *Fugitive Dust* specifies requirements for controlling fugitive dust. The proposed project does not include any significant sources of fugitive dust, therefore, the proposed project is not expected to violate Rule 403.

Rule 403.2 – *Fugitive Dust Control for the Mojave Desert Planning Area* specifies requirements for construction projects. The construction of the proposed project will be required to comply with the requirements of Rule 403.2.

Rule 404 – *Particulate Matter – Concentration* specifies standards of emissions for particulate matter concentrations. The equipment will be required to remain in compliance with Rule 404 through permit condition.

Rule 405 – *Solid Particulate Matter - Weight* limits particulate matter emissions from fuel combustion on a mass per unit combusted basis. The equipment will be required to remain in compliance with Rule 405 through permit condition.

Rule 406 – *Specific Contaminants* limits sulfur dioxide emissions. The sole use of ultra low sulfur diesel (<.0015% S) as a fuel will keep proposed project emission levels in compliance with Rule 406.

Rule 408 – *Circumvention* prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408.

Rule 409 – *Combustion Contaminants* limits total particulate emissions on a density basis. The proposed project will be required to comply with all District Rules.

Rule 430 – *Breakdown Provisions* requires the reporting of breakdowns and excess emissions. The proposed project will be required to comply with all District Rules.

Rule 431 – *Sulfur Content in Fuels* limits sulfur content in gaseous, liquid and solid fuels. The sole use of ultra low sulfur diesel (<.0015% S) will keep the proposed project in compliance with Rule 431.

Rule 1157 - *Boilers and Process Heaters*; this rule is only applicable to units located within the FONA. Because Molycorp is located outside of the Federal Ozone Nonattainment Area (FONA), this rule does not apply.

Regulation XII contains requirements for sources, which must have a federal operating permit. The facility emissions, including the proposed project, do not exceed the emissions thresholds for major facilities pursuant to 1201(S).

Rule 1300 – *General* ensures that Prevention of Significant Deterioration (PSD) requirements apply to all projects. The proposed project does not have the PTE to emit 100 tons per year or more of criteria pollutants and therefore is not a major source of emissions. As this facility is not a major source it is not subject to the PSD requirements Title I, Part C of the Federal Clean Air Act (42 U.S.C. §§7470-7492 which apply to major sources only and therefore is in compliance with the PSD requirements of Rule 1300.

Rule 1302 – *Procedure* requires certification of compliance with the Federal Clean Air Act, applicable implementation plans, and all applicable MDAQMD rules and regulations. The ATC application package for the proposed project includes sufficient documentation to comply with Rule 1302(C). Permit conditions for the proposed project will require compliance with Rule 1302(D)(5).

Rule 1303 – *Requirements* requires BACT for new or modified sources which have the PTE 25 tons/year or more of any non-attainment air pollutant and new permit units which have the PTE to emit more than 25 pounds per day of any non- attainment air pollutant. Because the facility PTE for $NO_x$ and $PM_{10}$ is over 25 tons/year, BACT is required for the boiler which has the PTE to emit more than 25 pounds per day of NOx and $PM_{10}$. The rule also requires offsets for selected facility modifications. The proposed project will not result in emissions increases and the facility emissions are limited by permit condition with the emissions above the major source threshold having been previously offset. Prior to the commencement of construction the owner/operator must surrender to the District sufficient valid Emission Reduction Credits such that this project complies with Rule 1303(B)(1)

Rule 1304 – *Emissions Calculations;* this rule provides the procedures and formulas to calculate emissions increases and decreases for new or modified Facilities. The procedures set forth in the rule were followed in determining the emissions associated with the proposed project.

Rule 1305 *Emissions Offsets* this facility does have the PTE 25 tons per year or more of $NO_x$ and $PM_{10}$. The proposed equipment is not anticipated to be operated concurrently with the turbines associated with the CHP plant except during a commissioning period as the turbines are brought on line. The emissions associated with the CHP plant and Stage II process upgrades were previously offset and the facility emissions have been capped based on those offsets for $NO_x$ and $PM_{10}$ and on offset thresholds for VOC, $SO_x$ and CO. Emissions from the proposed boiler and associated SCR system do not exceed the facility cap based on 8,760 hours of operation per year. The facility is required by permit condition to maintain emissions at or below the specified cap.

Rule 1310 *Federal Major Facilities & Federal Major Modifications;* the proposed project results in emissions below thresholds for MDAQMD's definition of federal major modifications for all criteria pollutants. The facility potential to emit including emissions from the proposed project are less than 100 tons per year, therefore this project is not a federal major modification and Molycorp is not a federal major facility. Emissions associated with this project are below the thresholds requiring Prevention of Significant Deterioration (PSD).

Rule 1320 *New Source Review for Toxic Air Contaminants*; this rule sets forth the requirements for new and modified sources of Toxic Air Contaminants (TAC). The requirements of Rule 1320 were applied to the proposed project and are discussed in section 5.

## 8. Conclusion

The MDAQMD has reviewed the proposed project application, and determined that the proposed project, after District permit issuance, including the permit conditions as listed below, will comply with all applicable MDAQMD Rules and Regulations. This preliminary decision will be available for public comment and publicly noticed; final permits (Authorities to Construct) should be released within 2-weeks following the conclusion of the comment period.

## 9. Permit Conditions

The following permit conditions will be placed on the Permits to Operate for the affected equipment.
DIESEL FIRED BOILER
Description: 83 MMBtu/hr diesel fired boiler with dry low NOx burner, flue gas recirculation and a selective catalytic reduction system.
*Application Number: 00012052 Permit Number: B011367*

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

2. The owner/operator (o/o) shall comply with all District rules and regulations including, but not limited to, malfunction/breakdown notifications.

3. This equipment shall be operated only ultra low sulfur diesel (<.0015% S by weight) and shall be equipped with a non-resettable fuel meter.

4. This equipment shall be operated and maintained in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles.

5. This equipment is subject to the federal NSPS codified as 40 CFR Part 60, Subparts A (General Provisions) and Dc ('Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units").

6. This equipment is subject to the federal NESHAP codified as 40 CFR Part 63, Subpart JJJJJJ ("National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers")

7. This equipment shall not exhibit greater than 20 percent opacity.

8. This facility shall submit reports to MDAQMD for each six month period no later than the thirtieth day following the end of the six month reporting period as required under 40 CFR 60, Subpart Dc, §48c.

9. This facility shall submit the notification reports to USEPA as required under 40 CFR 63, Subpart JJJJJJ §63.11225

a. Initial notification within 120 days after start up
b. Notice of intent to conduct performance test at least 60 days prior to conducting the source test, unless the equipment is shut down and the permit surrendered before the applicable tests are required to be completed.
c. Notification of Compliance Status, within 60 days of performing required source tests
d. Annual Compliance Certification, no later than March 15 of each year

Performance tune ups pursuant to 40 CFR 63, Subpart JJJJJJ §63.11214 and §63.11223 shall be completed on this equipment. Tune ups shall be completed to show initial compliance with the NESHAPS and biennially thereafter with a signed Notice of Compliance Status Report being submitted to USEPA unless the equipment is shut down and the permit surrendered before the applicable tests are required to be completed.

10. Emissions from this equipment shall not exceed the limits contained in Condition 13 except during startup and shutdown periods. Startup is defined as the period beginning with ignition and ending when the equipment has reached operating permit limits. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.

11. The o/o shall not operate this equipment after the initial commissioning period without operating the selective catalytic reduction (SCR) system listed in District permit C011368. During an initial commissioning period of no more than 120 days, commencing with the first firing of fuel in this equipment, $PM_{10}$, $NO_x$, CO, VOC and ammonia concentration limits listed in Condition 7 shall not apply. The o/o shall minimize emissions of $PM_{10}$, $NO_x$, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.

12. Stack emissions from this equipment vented to properly operating control equipment under District Permits C011290, shall not exceed the following hourly emission limits at any firing rate, except during periods of startup, shutdown, verified by fuel use and compliance tests:
    a. $NO_x$ as $NO_2$:
        1. 4.32 lb/hr operating at 100% load (based on 40 ppmvd corrected to 3% $O_2$ and averaged over one hour
    b. CO:
        1. 3.11 lb/hr operating at 100% load (based on 50 ppmvd corrected to 3% $O_2$ and averaged over one hour)
    c. VOC as $CH_4$:
        1. 0.33 lb/hr operating at 100% load
    d. $SO_x$ as $SO_2$:
        1. 0.14 lb/hr operating at 100% load
    e. $PM_{10}$:
        1. 2.49 lb/hr operating at 100% load
    f. $NH_3$
        1. 1.04 lb/hr operating at 100% load (based on 10.0 ppmvd ammonia corrected to 3% $O_2$ )

13. The o/o shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:
    a. Total operation time (hours per day, hours per year);
    b. Annual fuel use per rolling twelve months;
    c. Total rolling twelve month year emissions of $NO_x$, CO, $PM_{10}$, VOC, $SO_x$ and NH3(including calculation protocol); and,
    d. Operating load maintained within a maximum of 110% of the average load recorded during the most recent performance test
    e. Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.

14. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emissions limits.
[40 CFR Part 60, Subpart Dc §60.48c(f)]

15. O/o shall submit the initial notification required under 40 CFR Part 60 Subpart Dc §60.48c

16. The o/o shall perform an initial compliance test on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual within 180 days of initial start up unless the equipment is shut down and the permit surrendered before the applicable tests are required to be completed. The test report shall be submitted to the District within 6 weeks of performance of the test. The initial compliance test shall be for all items listed in condition 13 above, in addition to:
    a. $NO_x$ as $NO_2$ in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
    b. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).
    c. $PM_{10}$ in $mg/m^3$ and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
    d. $SO_x$ as $SO_2$ in lb/hr at calculated based on fuel supplier provided information. (measured per USEPA Reference Methods 19)
    e. $NH_3$ in ppmvd at 3% oxygen and lb/hr
    f. Opacity (measured per USEPA reference Method 9) [.40 CFR Part 60 Subpart Dc §60.47c(a)]
    g. Flue gas flow rate in dscf per minute.
    h. VOC as $CH_4$ in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).

17. The o/o shall perform annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:
    a. $NO_x$ as $NO_2$ in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
    b. CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).

c. $PM_{10}$ in $mg/m^3$ and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
d. $NH_3$ in ppmvd at 3% oxygen and lb/hr
e. Flue gas flow rate in dscf per minute.
f. Opacity (measured per USEPA reference Method 9) [.40 CFR Part 60 Subpart Dc §60.47c(a)].

18. The owner/operator must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII the owner/operator shall obtain 17 tons of $NO_x$ offsets and 46 tons of $PM_{10}$ offsets for the new equipment proposed for Stage I and Stage II of the project.

19. Mountain Pass Mine Facility Emissions Limits: The total criteria pollutant emissions for the Mountain Pass Mine shall be less than: 42 tons per year of $NO_x$, 25 tons per year of VOC, 46 tons per year of $PM_{10}$, 25 tons per year of $SO_x$, and 100 tons per year of CO. The total emissions of Hazardous Air Pollutants (HAPs) for the Mountain Pass Mine shall be less than 10 tons per year for any single HAP and 25 tons per year for any combination of HAPs calculated on an annual basis. HAPs are defined in 40 CFR 61.01 and are the chemical compounds listed in section 112(b) of the Clean Air Act (Act).

(b). Monitoring, Periodic Monitoring & Recordkeeping Conditions. This facility shall demonstrate compliance with the specific facilitywide emission limits through the submission of an approved CEIP and CEIR. The CEIP and CEIR shall be based on actual emissions as determined by source test of the equipment or on district approved methods and emissions factors only. Generic or default emission factors shall not be used without approval from the District. The Comprehensive Emission Inventory Plan (CEIP) shall be due no later than March 31 of the year following the year of the actual emissions to be reported. Emissions will be calculated separately for each emissions source on a monthly basis and used to calculate the 12 month rolling annual total. All emissions sources including all permit units will be summed on a monthly basis and used to calculate the 12 month rolling annual total. The permit unit and facilitywide monthly emissions, 12 month rolling annual emissions total, and approved CEIR shall be kept on site and provided to District personnel upon request.

(c) A facility wide Comprehensive Emission Inventory (CEIR) must be submitted to the District, in a format approved by the District, for all emitted criteria air pollutant on a yearly basis, and every three years for toxic air pollutants, which is to be received by the District no later than April 30 of the following year.

[40 CFR 70.6 (a)(3)(i)(B) - Periodic Monitoring Requirements]

[Rule 204 - Permit Conditions; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(B) - 11/09/78 43 FR 52237; Current Rule Version = 07/25/77]

[California Clean Air Act, Health and Safety Code §§39607 and §§44300 et seq., and the Federal Clean Air Act, §110(a)(2)(F)(ii), codified in 40 CFR 60]

SCR SYSTEM

Description: Selective catalytic reduction system, manufacturer and model to be determined, with a catalyst located within the boiler under permit B011289 and an ammonia injection system designed to reduce emissions of $NO_x$

*Application Number: 00012053 Permit Number: C011368*

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.

3. This equipment shall be operated concurrently with the boiler covered in valid permit B011367.

4. Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded the minimum required operating temperature as determined by the equipment manufacturer except for periods of equipment malfunction. Except during periods of startup, shutdown and malfunction, ammonia slip shall not exceed 10.0 ppmv dry at 3% oxygen.

5. Ammonia usage log based on tank fills of this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

6. The owner/operator must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII the owner/operator shall obtain 17 tons of $NO_x$ offsets and 46 tons of $PM_{10}$ offsets for the new equipment proposed for Stage I and Stage II of the project.

7. Mountain Pass Mine Facility Emissions Limits: The total criteria pollutant emissions for the Mountain Pass Mine shall be less than: 42 tons per year of $NO_x$, 25 tons per year of VOC, 46 tons per year of $PM_{10}$, 25 tons per year of $SO_x$, and 100 tons per year of CO. The total emissions of Hazardous Air Pollutants (HAPs) for the Mountain Pass Mine shall be less than 10 tons per year for any single HAP and 25 tons per year for any combination of HAPs calculated on an annual basis. HAPs are defined in 40 CFR 61.01 Lists of pollutants and are the chemical compounds listed in section 112(b) of the Clean Air Act (Act).

(b). Monitoring, Periodic Monitoring & Recordkeeping Conditions. This facility shall demonstrate compliance with the specific facilitywide emission limits through the submission of an approved CEIP and CEIR. The CEIP and CEIR shall be based on actual emissions as determined by source test of the equipment or on district approved methods and emissions factors only. Generic or default emission factors shall not be used without approval from the District. The Comprehensive Emission Inventory Plan (CEIP) shall be due no later than March 31 of the year following the year of the actual emissions to be reported. Emissions will be calculated separately for each emissions source on a monthly basis and used to calculate the 12 month rolling annual total. All emissions sources including all permit units will be summed on a monthly basis and used to calculate the 12 month rolling annual total. The permit unit and facilitywide monthly emissions, 12 month rolling annual emissions total, and approved CEIR shall be kept on site and provided to District personnel upon request.

(c) A facility wide Comprehensive Emission Inventory (CEIR) must be submitted to the District, in a format approved by the District, for all emitted criteria air pollutant on a yearly basis, and every three years for toxic air pollutants, which is to be received by the District no later than April 30 of the following year.

[40 CFR 70.6 (a)(3)(i)(B) - Periodic Monitoring Requirements]

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[California Clean Air Act, Health and Safety Code §§39607 and §§44300 et seq., and the Federal Clean Air Act, §110(a)(2)(F)(ii), codified in 40 CFR 60]

## D. Public Comment and Notifications

### *1. Public Comment*

This preliminary decision/determination will be released for public comment and publicly noticed on or about December 7, 2011. Written comments will be accepted for 30 days from the date of publication of the public notice. Final permits should be issued within 30 days following the end of the public comment period and concurrent EPA comment period.

Any comments on this Preliminary Decision/Determination shall be forwarded to:

Eldon Heaston, Executive Director
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310
Attention: Roseana Navarro-Brasington

### *2. Notifications*

All correspondence as required by Rule 1302 shall be forwarded to (including written and electronic notification to USEPA of the start of the public comment period):

Director, Office of Air Division
United States EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105

Chief, Stationary Source Division
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Scott Honan, Director Health, Environment,
Safety and Sustainability
Molycorp Minerals, LLC.
HC1 Box 224
Mountain Pass, CA 92366

Appendix A – Emissions Tables

HAP/TAC Emissions – proposed boiler based on maximum PTE

| Substance | lb/hr | lb/yr | tons/yr |
|---|---|---|---|
| 1,3-Butadiene | 9.60E-03 | 8.41E+01 | 4.20E-02 |
| 2-Methylnaphthalene | 9.08E-05 | 7.95E-01 | 3.98E-04 |
| Acenaphthene | 1.37E-04 | 1.20E+00 | 5.99E-04 |
| Acenaphthylene | 4.21E-05 | 3.69E-01 | 1.85E-04 |
| Acetaldehyde | 2.27E-01 | 1.99E+03 | 9.96E-01 |
| Acrolein | 2.27E-01 | 1.99E+03 | 9.96E-01 |
| Anthracene | 1.55E-05 | 1.36E-01 | 6.79E-05 |
| Arsenic | 1.04E-03 | 9.09E+00 | 4.54E-03 |
| Barium | 2.49E-07 | 2.18E-03 | 1.09E-06 |
| Benzene | 2.85E-03 | 2.50E+01 | 1.25E-02 |
| Benzo(a)anthracene | 8.75E-06 | 7.67E-02 | 3.83E-05 |
| Benzo(a)pyrene | 4.90E-06 | 4.29E-02 | 2.14E-05 |
| Benzo(b)fluoranthene | 4.33E-06 | 3.79E-02 | 1.89E-05 |
| Benzo(e)pyrene | 9.08E-06 | 7.95E-02 | 3.98E-05 |
| Benzo(g,h,I)perylene | 5.51E-06 | 4.83E-02 | 2.41E-05 |
| Benzo(k)fluoranthene | 5.39E-05 | 4.72E-01 | 2.36E-04 |
| Cadmium | 9.73E-04 | 8.52E+00 | 4.26E-03 |
| Chlorobenzene | 1.30E-04 | 1.14E+00 | 5.68E-04 |
| Chromium (hexavalent) | 6.48E-05 | 5.68E-01 | 2.84E-04 |
| Chromium (total) | 3.89E-04 | 3.41E+00 | 1.70E-03 |
| Chrysene | 8.30E-06 | 7.27E-02 | 3.64E-05 |
| Copper | 2.66E-03 | 2.33E+01 | 1.16E-02 |
| Dibenzo(a,h)anthracene | 4.21E-06 | 3.69E-02 | 1.84E-05 |
| Ethyl Benzene | 1.30E-04 | 1.14E+00 | 5.68E-04 |
| Fluoranthene | 2.15E-05 | 1.89E-01 | 9.43E-05 |
| Fluorene | 7.59E-05 | 6.65E-01 | 3.32E-04 |
| Formaldehyde | 2.27E-01 | 1.99E+03 | 9.96E-01 |
| Hexane | 2.27E-03 | 1.99E+01 | 9.94E-03 |
| Indeno(1,2,3-cd)pyrene | 4.31E-06 | 3.77E-02 | 1.89E-05 |
| Lead | 5.38E-03 | 4.71E+01 | 2.36E-02 |
| Manganese | 2.01E-03 | 1.76E+01 | 8.80E-03 |
| Mercury | 1.30E-03 | 1.14E+01 | 5.68E-03 |
| Methyl chloroform | 1.53E-04 | 1.34E+00 | 6.70E-04 |
| Naphthalene | 3.44E-03 | 3.01E+01 | 1.51E-02 |
| Nickel | 2.53E-03 | 2.22E+01 | 1.11E-02 |
| OCDD | 2.01E-09 | 1.76E-05 | 8.80E-09 |
| PAH's | 3.23E-02 | 2.83E+02 | 1.41E-01 |
| Perylene | 1.76E-05 | 1.54E-01 | 7.70E-05 |
| Phenanathrene | 2.41E-04 | 2.11E+00 | 1.06E-03 |
| Propylene | 6.48E-03 | 5.68E+01 | 2.84E-02 |
| Pyrene | 2.65E-05 | 2.32E-01 | 1.16E-04 |
| Selenium | 1.43E-03 | 1.25E+01 | 6.25E-03 |
| Toluene | 2.85E-03 | 2.50E+01 | 1.25E-02 |
| Xylenes | 1.04E-03 | 9.09E+00 | 4.54E-03 |
| Zinc | 1.45E-02 | 1.27E+02 | 6.36E-02 |
| | | | |
| | Total HAPs (tons/yr) | 3.2 | |
| | Total TACs (tons/yr) | 3.4 | |

# Emissions from proposed boiler:

**Molycorp Minerals, LLC**

| Permit No. | Equipment | MMBtu/hr | Max Day Hours | Annual Hours | EmFac pounds/MMBtu NOx | VOC | SO2 | PM10 | CO | NH3 | Max Daily (lbs) NOx | VOC | SO2 | PM10 | CO | NH3 | Max Annual (lbs) NOx | VOC | SOx | PM10 | CO | NH3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | boiler w/SCR, FGR and DLN | *83* | *24* | *8760* | 0.052 | 0.004 | 0.002 | 0.03 | 0.038 | 0.013 | 103.639 | 7.968 | 3.288 | 59.760 | 74.700 | 24.900 | 37828.119 | 2908.320 | 1200.187 | 21812.400 | 27265.500 | 9088.5 |
| | | | | | | | | | total pounds each: | | 103.639 | 7.968 | 3.288 | 59.760 | 74.700 | 24.900 | 37828.119 | 2908.320 | 1200.187 | 21812.400 | 27265.500 | 9088.500 |
| | | | | | | | | | total tons each: | | 0.052 | 0.004 | 0.002 | 0.030 | 0.037 | 0.012 | 18.914 | 1.454 | 0.600 | 10.906 | 13.633 | 4.544 |

*Notes:*

Emission factors Nox, VOC, CO and PM10 based on manufacturer gurarantee data provided by applicant

| | | |
|---|---|---|
| NOx | 40 | ppmv |
| VOC | 10 | ppmv |
| CO | 50 | ppmv |
| PM10 | 0.03 | lb/Mmbtu |
| NH3 | 10 | ppmv |

BACT for simple cycle diesel fired boilers >50 MMbtu/hr SCR, LNB, FGR, ULSD, good combustion practices, based on relevant class and category findings, BAAQMD, SCAQMD, SJVUAPCD and USEPA RACT/BACT/LAER Clearinghouse

This unit meets BACT requirement based on vendor data provided.

NH3 is not a HAP or TAC, however 10 ppm emission concentration will be limited by permit condition

Conversions:

| | | |
|---|---|---|
| 1020 | BTU/scf (HHV) | AP 42 Section 1.4. See paragraph 1.4.1. |
| 0.000015 | lb S/lb diesel | |
| 1.998004 | lb SO2/lb S | |
| 128 | MMbtu/1000 gal diesel | MDAQMD default emission factor |
| 7.05 | lb/gal | density of diesel fuel |