TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR AIR QUALITY PERMIT REVISION NO. 96391 TO OPERATING PERMIT NO. 72683

I. INTRODUCTION

This Class I Significant Permit Revision authorizes Freeport-McMoRan Morenci Inc. (FMMI), the Permittee, to make the following changes to the Concentrate Leach Plant: (a) increase the maximum capacity of each Pressure Leach Vessel (PLV) to 20 tons per hour (tph); (b) add an additional cooling tower at the Oxygen Plant; and (c) replace the existing pollution control equipment with a two-train control system (one for each PLV).

A. Company Information

Facility Name:	Freeport-McMoRan – Morenci
Mailing Address/ Facility Location:	4521 U.S. Highway 191 Morenci AZ, 85540

B. Attainment Classification

Freeport-McMoRan – Morenci is located in Greenlee County, an area classified as attainment or unclassified for all criteria pollutants.

II. REVISION DESCRIPTION

FMMI currently operates two PLVs at the Concrete Leach Plant (CLP). These PLVs have a cumulative total maximum capacity of 29.1 tph of copper concentrate and are controlled by a 2-Stage Scrubber. This significant permit revision will replace the cumulative emission limits (as controlled by the 2-Stage Scrubber) with separate limits for each PLV and associated controlled device. Each PLV will have a permitted maximum capacity of 20 tph. This will increase the total cumulative maximum capacity of the units by 10.9 tph of copper concentrate. To accommodate for the increased maximum capacities, the current 2-Stage Scrubber will be replaced by a two-train control system (one train for each PLV) and an additional cooling tower to support the Oxygen Plant.

The new parallel pollution control trains for the PLVs will each consist of a Vent Gas Cyclone to recover any slurry entrained in the exhaust gas, a Spray Condenser to condense any remaining steam, and a Scrubber to control any remaining particulate matter (PM).

The new Oxygen Plant Cooling Tower 2 will be rated at a maximum of 3,600 gallons per minute (gpm) and have a maximum drift rate of 0.01%. It will function similarly to the existing Oxygen Plant Cooling Tower 1.

The changes to the CLP will enable FMMI to process more copper concentrate onsite instead of shipping it to a smelter, and will allow downstream operations to operate closer to their maximum capacity.

III. EMISSIONS

The facility's change in potential to emit (PTE) for the PLVs are based on hours of operation and voluntary emission limits. Potential emissions for Oxygen Plant Cooling Tower 2 are calculated based on the methodology described in AP-42 Section 13.4, Wet Cooling Towers. The facility's PTE is provided in Table 1 below:

Table 1: Potential to Emit (tpy)

Pollutant	PTE (from latest permitting action)	Change in PTE (due to the authorized changes)	PTE (following the authorized changes)	Permitting Exemption Threshold	Significant Thresholds	Minor NSR Triggered?
PM	230.99	+1.31	232.31	N/A	N/A	N/A
PM_{10}	186.02	+1.31	187.33	7.5	15	No
$PM_{2.5}$	163.63	+1.31	164.94	5	10	No
NO_X	237.78	0.00	237.78	20	40	No
CO	142.08	0.00	142.08	50	100	No
SO_2	2.08	0.00	2.08	20	40	No
VOCs	41.64	+10.20	51.84	20	40	No
HAPs	15.19 (total)	0.00	15.19	N/A	10 (single)/ 25 (combined)	No
GHG (CO_2e)	100,905	0.00	100,905	--	75,000	No

IV. MINOR NEW SOURCE REVIEW

Minor new source review (NSR) is required if the emissions of any physical change, or change in the method of an operation of an emission unit or stationary source increases the PTE of any regulated minor NSR pollutant by an amount greater than the permitting exemption threshold (PET) as shown in Table 1 above. This significant permit revision does not increase the PTE of any regulated minor NSR pollutant above the corresponding PET as demonstrated in Table 1 above. Thus, minor NSR does not apply.

V. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS

This significant permit revision permit revises and adds the following voluntary emission limitations and standards:

A. Process #014-458: Pressure Leach Vessel 1 Controlled by PLV Scrubber 1

The voluntary VOCs emission limit for PLV 1 will be revised from a cumulative emission limit of 5.82 lb/hr of VOCs applicable to PLVs 1 and 2 as controlled by the PLV 2-Stage

Scrubber (Process #014-239) to 4.074 lb/hr of VOCs applicable to PLV 1 as controlled by PLV Scrubber 1 only. This limit was revised to account for the increase in the maximum capacities of PLVs 1 and 2 and the PLV 2-Stage Scrubber (Process #014-239) being replaced by PLV Scrubber 1 and PLV Scrubber 2.

The voluntary PM and PM_{10} emission limits for PLV 1 will be revised from cumulative emission limits of 0.75 lb/hr for both PM and PM_{10} applicable to PLVs 1 and 2 as controlled by the PLV 2-Stage Scrubber (Process #014-239) to 0.525 lb/hr for both PM and PM_{10} applicable to PLV 1 as controlled by PLV Scrubber 1 only. This limit was revised to account for the increase in the maximum capacities of PLVs 1 and 2 and the PLV 2-Stage Scrubber (Process #014-239) being replaced by PLV Scrubber 1 and PLV Scrubber 2. The voluntary emission limits were increased by 40% from the existing voluntary emission limit and divided equally between the PLVs as controlled by the new Scrubbers.

B. Process #014-459: Pressure Leach Vessel 2 Controlled by PLV Scrubber 2

The voluntary VOCs emission limit for PLV 2 will be revised from a cumulative emission limit of 5.82 lb/hr of VOCs applicable to PLVs 1 and 2 as controlled by the PLV 2-Stage Scrubber (Process #014-239) to 4.074 lb/hr of VOCs applicable to PLV 2 as controlled by PLV Scrubber 2 only. This limit was revised to account for increase in the maximum capacities of PLVs 1 and 2 and the PLV 2-Stage Scrubber (Process #014-239) being replaced by PLV Scrubber 1 and PLV Scrubber 2.

The voluntary PM and PM_{10} emission limit for PLV 2 will be revised from cumulative emission limits of 0.75 lb/hr for both PM and PM_{10} applicable to PLVs 1 and 2 as controlled by the PLV 2-Stage Scrubber (Process #014-239) to 0.525 lb/hr for both PM and PM_{10} applicable to PLV 2 as controlled by PLV Scrubber 2 only. This limit was revised to account for the increase in the maximum capacities of PLVs 1 and 2 and the PLV 2-Stage Scrubber (Process #014-239) being replaced by PLV Scrubber 1 and PLV Scrubber 2. The voluntary emission limits were increased by 40% from the existing voluntary emission limit and divided equally between the PLVs as controlled by the new Scrubbers.

C. Process #014-239: Pressure Leach Vessels Controlled by the PLV 2-Stage Scrubber

The PLV 2-Stage Scrubber equipment will be removed and replaced by new PLV Scrubbers and the associated voluntary emission limits will be removed from the permit. New voluntary emission limits will be incorporated to account for this equipment being replaced as described in Sections A and B above.

VI. COMPLIANCE ASSURANCE MONITORING (CAM)

The CAM rule applies to pollutant-specific emission units (PSEU) at a major Title V source if the unit meets all of the following criteria:

A. The unit is subject to an emission limit or standard for the applicable regulated air pollutant;

B. The unit uses a control device to achieve compliance with the emission limit or standard; and

C. The unit has "potential pre-control device emissions" of the applicable regulated air pollutant equal to or greater than 100% of the amount (tons/year) required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit (PTE, as defined in Title V) except emissions reductions achieved by the applicable control device are not taken into account.

None of the emission units addressed in this significant permit revision are considered large PSEUs. Therefore, a CAM analysis is not required.

VII. ENVIRONMENTAL JUSTICE ANALYSIS

The Environmental Protection Agency (EPA) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards. The significant permit revision does not allow or permit any significant increases in emissions.

The EPA developed EJScreen, a publicly available tool that uses nationally consistent data, to produce maps and reports detailing environmental and demographic indicators that can be used to evaluate EJ concerns. The EPA selected a 90th percentile threshold for this action to evaluate the potential for EJ concerns in a community, meaning that if the area of interest exceeds the 90th percentile for one or more of the EJ indexes, the EPA considers that area to have a high potential for EJ concerns. The ADEQ mapped the location of FMMI and reviewed a 2-mile radius around the facility for potential environmental justice concerns (see Figure 1 below).

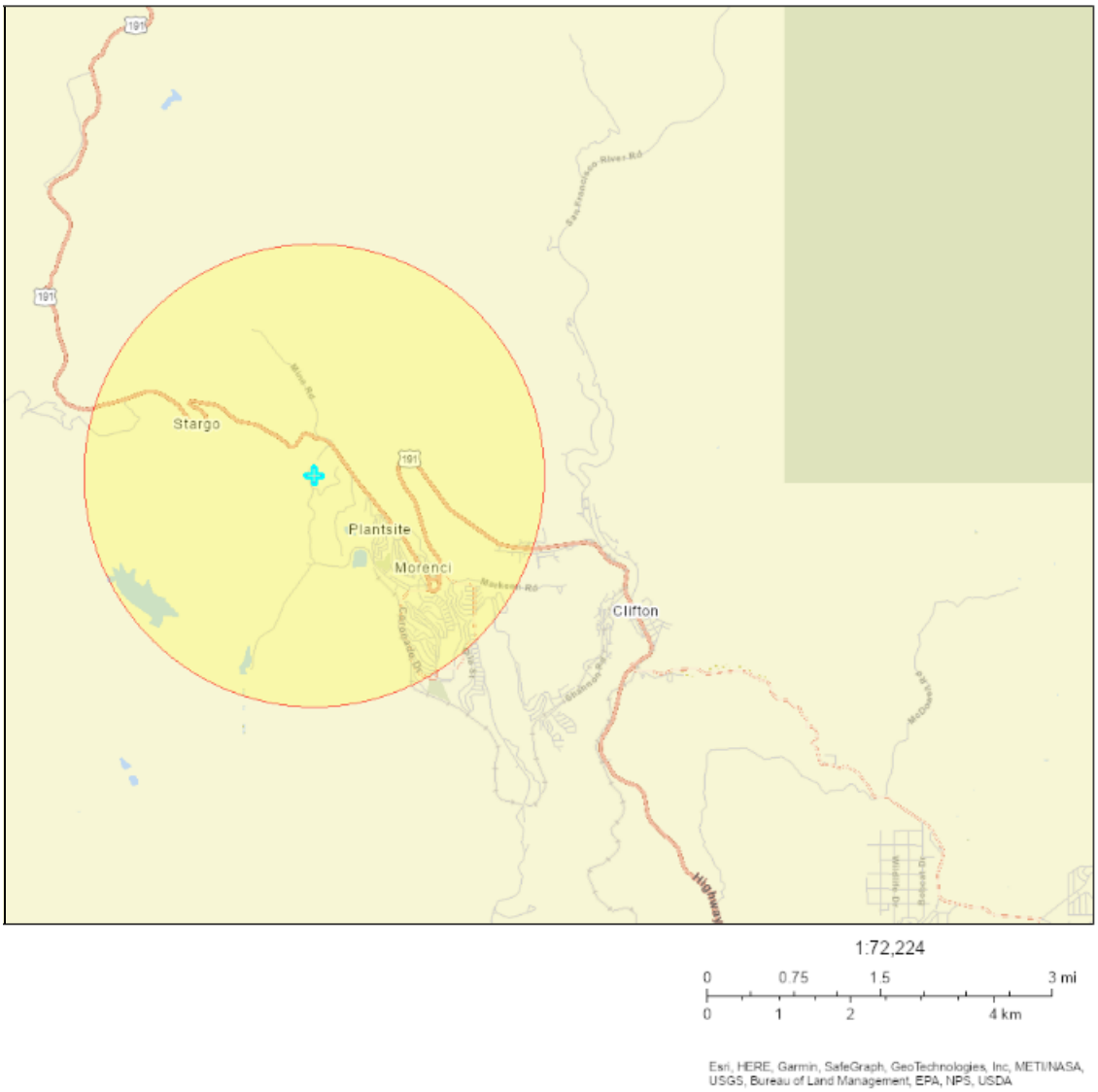

Figure 1: EPA Environmental Justice Screening Area

A. Demographics

The ADEQ relied on data from the EPA EJScreen tool to assess the demographics of the communities near the location of the FMMI facility. The EJScreen report shows that the Demographic Indicators: People of Color, Limited English Speaking Population, and Population Under Age 5 and Population Over Age 64, are all below the 80th percentile threshold. The Demographic Indicator for Population with Less Than High School Education was in the 4th percentile compared to the USA average, Population Over Age 64 was in the 6th percentile compared to Arizona and was in the 60th percentile compared the USA average, and People of Color was in the 72nd percentile compare to the USA average.

B. Summary of Air Quality

All air quality related environmental indicators within a 5-miles radius of the facility were below the 90th percentile for both Arizona and the USA averages. ADEQ has determined that the issuance of the significant permit revision will not have an adverse impact on the community.

C. Conclusion

The ADEQ concludes that the protections afforded by Arizona Revised Statutes (A.R.S.) § 49-426, which is imposed through the permit, ensure that the public health and environment in Arizona are protected and that the public notice and comment opportunities afforded to the community on this significant permit revision satisfy the public participation component of the EPA EJ Guidance. Additionally, ADEQ posts a notice in two newspapers of general circulation within the surrounding community, as well as publishes the notice electronically to ensure that the community has ample opportunity to provide comments on the draft documents prior to a final permitting decision.

VIII. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
A.R.S. ..... Arizona Revised Statutes
CAM ..... Compliance Assurance Monitoring
CFR ..... Code of Federal Regulations
CLP ..... Concrete Leach Plant
CO_2e ..... CO_2 Equivalent Basis
EPA ..... Environmental Protection Agency
FMMI ..... Freeport-McMoRan Morenci Inc.
GHG ..... Greenhouse Gases
gpm ..... Gallon Per Minute
HAPs ..... Hazardous Air Pollutants
hr ..... Hour
NAAQS ..... National Ambient Air Quality Standards
NO_X ..... Nitrogen Oxides
NO_2 ..... Nitrogen Dioxide
O_3 ..... Ozone
PLV ..... Pressure Leach Vessel
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter Less Than 10 µm Nominal Aerodynamic Diameter
$PM_{2.5}$ ..... Particulate Matter Less Than 2.5 µm Nominal Aerodynamic Diameter
PTE ..... Potential to Emit
SO_2 ..... Sulfur Dioxide Significant Impact Levels
tpy ..... Tons Per Year
VOCs ..... Volatile Organic Compounds