

**STATE OF NEW MEXICO  
WATER QUALITY CONTROL COMMISSION**



**IN THE MATTER OF THE PETITION FOR A  
VARIANCE TO APPROVE ALTERNATIVE  
ABATEMENT STANDARDS FOR THE PECOS  
MINE OPERABLE UNIT**

**No. WQCC 18-03(V)**

**Cyprus Amax Minerals Company,  
Petitioner.**

**NEW MEXICO ENVIRONMENT DEPARTMENT'S  
RESPONSE TO PETITION FOR ALTERNATIVE ABATEMENT STANDARDS**

Pursuant to the Water Quality Control Commission's ("Commission's") abatement regulations at 20.6.2.4103 NMAC, and the Commission's Adjudicatory Procedures at 20.1.3.18(A)(3) NMAC, the New Mexico Environment Department ("NMED" or "Department") submits this response to the Petition for a Variance to Approve Alternative Abatement Standards ("Petition") for the Pecos Mine Operable Unit ("PMOU"), commonly known as the Terrero Mine. Cyprus Amax Minerals Company ("CAMC" or "Petitioner") filed this Petition on April 27, 2018. The Petition requests alternative abatement standards for the PMOU, near Terrero, New Mexico in San Miguel County. The Department supports the requested alternative abatement standards and recommends that the Commission grant the Petition.

**I. BACKGROUND**

CAMC is the successor company to Amax Resource Conservation Company, which in turn is the successor corporation to the American Metal Company Limited ("AMC"). In 1925, AMC and the Goodrich-Lockhart Company formed a corporation called the American Metal Company of New Mexico ("AMCNM"). From 1926 through 1939, AMCNM developed and operated a lead and zinc mine located approximately 16 miles north of the Village of Pecos at the confluence of Willow Creek and the Pecos River, as well as a mill, located about two miles northwest of the Village of

Pecos, which was used to process the ore mined at the Pecos Mine.

The PMOU, which is the subject of the Petition, consists of the reclaimed historical mine site. In the mid-1980s, NMED conducted a study of the surface water near the mine, and found elevated metals concentrations in springs and other surface water features discharging from around the Pecos Mine area. Subsequent investigations showed that mine waste was also used between the 1930s and 1970s to develop and maintain roads and campgrounds at various locations in the Pecos area. In 1992, the Department entered into an Administrative Order on Consent (“AOC”) with AMC and the State of New Mexico as Respondents. The State of New Mexico is a Respondent because the New Mexico Department of Game and Fish currently owns the subject property. The AOC required investigation and remediation of the Pecos Mine consistent with the requirements of the federal Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”). The Department is responsible for enforcement of the AOC and oversight of the work conducted thereunder.

The AOC defined five “operable units” within the greater Pecos area: (1) Pecos Mine (“PMOU”); (2) El Molino (“EMOU”); (3) State Recreation Use Areas; (4) State Highway 63; and (5) Lisboa Springs Fish Hatchery. The Petition is for the PMOU only.

Under the AOC, CAMC was responsible for conducting a Remedial Investigation (“RI”) and Feasibility Study (“FS”) to assess the extent of groundwater and surface water contamination and the actions that needed to be taken to remediate the PMOU and address the water quality impacts. The RI and FS were submitted to the Department for review and were made available for public comment. Based upon the RI/FS and public comments, the Department issued a Decision Document in 1998 specifying the required remediation and abatement for the site. Thereafter, CAMC implemented the remedy, including source control for abatement of water contamination through

consolidation of mine waste and subsequent reclamation of the waste rock stockpile, between 1999 and 2004. The Department reviewed and approved the satisfactory completion of the reclamation and remediation work required under the AOC.

Monitoring of the ground water and surface water in the area conducted since completion of the PMOU remediation, along with other activities required by the Decision Document, indicate that while applicable water quality standards have been met at most monitoring locations, some groundwater monitoring locations continue to exceed the standards of 20.6.2.3103 NMAC for certain constituents. Thus, CMAC has petitioned the Commission for alternative abatement standards based on technical infeasibility.

## **II. STANDARD FOR GRANTING ALTERNATIVE ABATEMENT STANDARDS**

Alternative abatement standards fall within the Commission's authority to grant a variance from any requirement of the water quality regulations. Section 74-6-4(H) of the Water Quality Act provides that the Commission:

[M]ay grant an individual variance from any regulation of the commission whenever it is found that compliance with the regulation will impose an unreasonable burden upon any lawful business, occupation or activity. The commission may only grant a variance conditioned upon a person effecting a particular abatement of water pollution within a reasonable period of time. Any variance shall be granted for the period of time specified by the commission. The commission shall adopt regulations specifying the procedure under which variances may be sought, which regulations shall provide for the holding of a public hearing before any variance may be granted.

NMSA 1978, § 74-6-4(H).

The Commission's abatement regulations provide that a responsible person may submit a petition for approval of AAS any time after submission of a Stage 2 abatement plan. The Commission may approve the AAS if the petitioner demonstrates the following:

(a) compliance with the abatement standard(s) is/are not feasible, by the maximum use of technology within the economic capability of the responsible

person; OR there is no reasonable relationship between the economic and social costs and benefits (including attainment of the standards set forth in Section 20.6.2.4103 NMAC) to be obtained;

(b) the proposed alternative abatement standard(s) is/are technically achievable and cost-benefit justifiable; and

(c) compliance with the proposed alternative abatement standards will not create a present or future hazard to public health or undue damage to property.

#### 20.6.2.4103(F)(1) NMAC.

An AAS petition must provide the information required under Subsection 20.6.2.4103(F)(2) of the abatement regulations, as well as that required for variance petitions under Subsection 20.6.2.1210(A) NMAC. 20.6.2.1210(A) NMAC requires that the petition:

- (1) state the petitioner's name and address;
- (2) state the date of the petition;
- (3) describe the facility or activity for which the variance is sought;
- (4) state the address or description of the property upon which the facility is located;
- (5) describe the water body or watercourse affected by the discharge;
- (6) identify the regulation of the commission from which the variance is sought;
- (7) state in detail the extent to which the petitioner wishes to vary from the regulation;
- (8) state why the petitioner believes that compliance with the regulation will impose an unreasonable burden upon his activity; and
- (9) state the period of time for which the variance is desired.

Subsection 20.6.2.4103(F)(2) NMAC requires that an AAS petition also specify

the water contaminant(s) for which alternative standards(s) is/are proposed, the alternative standard(s) proposed, the three-dimensional body of water pollution for which approval is sought, and the extent to which the abatement standard(s) set forth in Section 20.6.2.4103 NMAC is/are now, and will in the future be, violated.

Under the Commission's Adjudicatory Procedures, the Department must review a petition for variance within sixty days after receipt and file a recommendation with the Commission to grant, grant with conditions, or deny the petition. 20.1.3.300(B) NMAC. If the Department recommends granting the petition, the Commission must hold a public hearing on whether to grant the AAS.

### III. DEPARTMENT'S RECOMMENDATION

The Department has reviewed the Petition and recommends that the Commission grant the Petition in full. Because the Department recommends granting the Petition, the Commission must hold a public hearing. 20.1.3.18(B) NMAC. The Department and Petitioner requested a hearing, and on May 8, 2018, the Commission granted that request and appointed Hearing Officer Erin Anderson. The matter has been referred to the Hearing Officer to schedule the hearing, which the Department and Petitioner have requested to take place in August of 2018, the Commission's docket permitting. *See Order Appointing Hearing Officer, WQCC 18-03(V) (May 13, 2016).*

### IV. REASONS

The Petition sets forth all the required information under 20.6.2.1210(A) NMAC (variance petitions) and 20.6.2.4103(F)(2) NMAC (alternate abatement standard petitions). The Department finds that Petitioner has made the demonstrations required for approval of alternate abatement standards under 20.6.2.4103(F)(1) NMAC, as discussed below.

#### A. **Compliance with the applicable abatement standards is not technically achievable**

Petitioner has demonstrated that the following abatement standards at 20.6.2.4103 NMAC are not technically achievable:

- Barium (Ba): 1.0 milligram per liter (mg/L)
- Cadmium (Cd): 0.01 mg/L
- Fluoride (F1): 1.6 mg/L
- Iron (Fe): 1.0 mg/L
- Manganese (Mn): 0.2 mg/L
- Total Dissolved Solids (TDS): 1,000 mg/L
- Zinc: 10 mg/L

- Cobalt: 0.05 mg/L

The remedy for the PMOU has been implemented as required under the Decision Document. The final remedy was selected based on a detailed evaluation of five remedial alternatives, as documented in the Decision Document. The overall strategy for remediation was to minimize contact between water and the acid-generating waste rock so as to minimize the formation of contaminated discharge that could emanate from the waste rock stockpile. Measures taken to control the discharge of impacted water at the PMOU site include the following:

- Consolidation and grading of the waste rock pile
- Removal of waste rock from the Willow Creek floodplain
- Construction of an underdrain interceptor and a surface drainage channel to intercept and divert upgradient surface water around the waste rock pile
- Construction of a series of grass- and rock-lined surface water control and diversion structures to route runoff across and away from the waste rock pile
- Covering the waste rock pile with a cap system consisting of a geosynthetic clay liner overlain by a 2-foot vegetative layer to minimize infiltration into the waste rock
- Capping of the main shaft

These and other measures are summarized in the Petition. The costs of implementation and subsequent monitoring and maintenance of remedial measures at the PMOU site total approximately \$12,233,674 through 2016.

There is no known feasible, cost-effective technology that would lead to a significant reduction in groundwater contaminant concentrations beyond that achieved at PMOU as a result of the previously-implemented remedial measures. Minimization of water infiltration through the waste rock pile and diversion of surface water runoff away from or across the pile has been implemented at

the PMOU site. Further efforts to improve groundwater quality would require disturbance of the waste rock pile cover system and/or NM 63 to construct a groundwater extraction system and, if attempted, may not be effective given the low permeability of the bedrock aquifer at the site, which makes efficient extraction of groundwater likely infeasible.

**B. There is no reasonable relationship between the economic and social costs and benefits to be obtained**

Petitioner has also demonstrated that there is no reasonable relationship between the costs and benefits of continuing abatement and the social costs and benefits of doing so. *See* 20.6.2.4103(F)(1)(a) NMAC. Even if groundwater extraction were feasible, there is no reasonable relationship between the cost of constructing and implementing such measures and the benefits of treating the small quantity of impacted groundwater (estimated to be approximately 2 gallons per minute (gpm) or less) that flows through the shallow portion of the fractured bedrock aquifer. In addition, construction of such a system would be detrimental to the waste rock cover system, which has been constructed and is stable and well-established, and to wetlands that exist west of the reclaimed waste rock pile.

Petitioner has proposed the following institutional and government controls to prevent future use of the bedrock aquifer as a source of potable water in order to mitigate social costs from the proposed AAS:

1. The Department will petition the New Mexico Office of the State Engineer (“OSE”) under State Engineer regulation 19.27.5.13.A NMAC to issue an Order prohibiting construction of a well in the affected groundwater system. Figure 2 of the Petition includes the necessary information and documentation for the Department to prepare its recommendation for the Order under

19.27.5.13.A NMAC if the Commission approves the Petition. Pursuant to such Order, if a water well permit is requested within the designated area, the OSE will deny the permit.

2. The New Mexico State Engineer's regulations at 19.27.4 NMAC contain provisions that prevent construction of a water supply in contaminated groundwater. *See* 19.27.4.29 NMAC (requiring wells to be constructed to prevent contamination, inter-aquifer exchange of water, flood water contamination of aquifer, and infiltration of surface water); 19.27.4.29.D NMAC (requiring that all wells be set back from potential sources of contamination in accordance with NMED regulations and other applicable ordinances and regulations); 19.27.4.30.A NMAC (requiring annular seals when necessary to prevent flow of contaminated or low quality water); 19.27.4.30.A(4) NMAC (requiring annulus sealing and proper screening in wells which encounter non-potable, contaminated, or polluted water at any depth to prevent commingling of such water with any potable or uncontaminated water).

3. The PMOU is a historical mining property that is currently owned by, and will continue under the ownership of, the New Mexico Department of Game and Fish. There is no reason that water supply for human consumption would be required in the designated region. The existing campground area just northwest of the PMOU contains primitive camp sites with vault toilets, and no potable water is provided. Outside of the area for which AAS are requested, water quality standards will be met.

With the above institutional and government controls and requirements in place to prevent ingestion of groundwater in affected area, the AAS will allow the Department to close out abatement so that remediation of the PMOU can be deemed complete, and the site can be transferred to long-term monitoring and maintenance, to be carried out by NMDGF. Without the AAS, the PMOU would remain under abatement without any prospect of obtaining significant, additional reduction in



either seepage volume or constituent concentrations. Further site investigations and remedial actions would come at substantial costs and would likely lead to no significant improvement relative to current conditions, and would be an unwarranted expenditure of funds for both CAMC and the State of New Mexico which shares remediation costs with CAMC.

In sum, the costs of additional actions at the site, both in terms of dollars as well as negative environmental effects on reclamation measures that have already been completed, significantly outweigh any limited benefit that might be achieved. Therefore, the economic and social benefits of the proposed AAS (which include the above-described institutional and government controls), outweigh the benefits of continuing abatement which is unlikely to achieve 20.6.2.3103 NMAC standards.

**C. The proposed AAS are technically achievable and cost-benefit justifiable**

Petitioner proposes the following alternative abatement standards:

- Barium (Ba): 4.0 milligram per liter (mg/L)
- Cadmium (Cd): 0.10 mg/L
- Fluoride (F): 2.0 mg/L
- Iron (Fe): 40.0 mg/L
- Manganese (Mn): 8.0 mg/L
- Total Dissolved Solids (TDS): 1,700 mg/L
- Zinc: 40 mg/L
- Cobalt: 0.10 mg/L

The proposed AAS are based on the observed groundwater constituent concentrations collected at monitoring well locations over a period of more than 20 years, 12 years of which are representative of post-reclamation conditions. The proposed standards are therefore achievable, and because the

observed constituent concentrations have remained relatively steady (not increasing) and source controls have been implemented, future concentrations in groundwater are not likely to exceed the requested AAS. *See* 20.6.2.4103(F)(1)(b) NMAC. Reclamation of the site has already been performed, and approximately 12 years of post-reclamation monitoring and maintenance has occurred. Closure of the site will prevent unwarranted expenditure of funds by Petitioner, and by the State of New Mexico, which shares remediation costs with CAMC. Thus, the proposed AAS are cost-benefit justifiable.

**D. The proposed AAS will not create a hazard to public health or undue damage to property**

Of the constituents for which AAS are being requested, only barium, cadmium, and fluoride are listed as human health standards under 20.6.2.3103.A NMAC. Due to geography, land ownership, and institutional and government controls, there is no reason to anticipate that groundwater for which the AAS are sought will be used for human consumption. Much of the area within which the AAS are sought consists of the reclaimed waste rock stockpile, which has a steep benched slope. NM 63 runs adjacent to the base of the stockpile. The western margin of the AAS area west of NM 63 consists primarily of a low-lying, marshy area adjacent to the Pecos River, a portion of which is a wetland. It would be impractical and difficult to drill wells within these areas.

Further, the institutional and government controls outlined above will prevent human exposure to or ingestion of impacted groundwater, rendering the AAS protective of public health.

Likewise, no undue property damage will result from the approval of the AAS. The site is a historical mining property owned by NMDGF, and the property has been greatly improved through reclamation. Water quality standards will be met outside of the area for which AAS are requested, and therefore there will be no undue damage to adjacent regions.

## VI. CONCLUSION

For the foregoing reasons, the Department recommends that the Commission grant the proposed alternate abatement standards as set forth in the Petition. Given this recommendation and the Commission's May 10, 2018 Order Appointing Hearing Officer, the Department requests that the Hearing Officer proceed with scheduling the hearing.

Respectfully submitted,

NEW MEXICO ENVIRONMENT DEPARTMENT



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## CERTIFICATE OF SERVICE

I hereby certify that a copy of this Response to Petition for Alternative Abatement Standards was filed with the Administrator of Boards and Commissions and was served on the following parties of record on June 27, 2018:

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