



Freeport-McMoRan Chino Mines Company
P.O. Box 10
Bayard, NM 88023

Joseph A. Brunner
Director, Discontinued Ops
Telephone: 602-366-8331
e-mail: jbrunner@fmi.com

August 17, 2018

Certified Mail #70173040000031904696
Return Receipt Requested



Mr. Holland Shepherd
Mining and Minerals Division
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Mr. Shepherd:

**Re: Cyprus Pinos Altos -
Deming Tailings Impoundment, Permit No. LU008RE Modification Request**

Cyprus Pinos Altos Corporation (Cyprus) requests to modify the Post Mine Land Use (PMLU) designation of the Deming tailings and also clarify the vegetation monitoring requirements and revegetation success criteria as indicated in Sections 4.G, J.2, through J.4 of Permit No. LU008RE. Cyprus also request to propose a new reference area to which the vegetation monitoring of the Deming tailings will be compared.

Cyprus has had several email correspondence and telephone discussions with the Mining and Minerals Department (MMD) over the years about this permit modification. As indicated in the 2017 annual report which Cyprus submitted to MMD in a letter dated April 9, Cyprus would like to conduct a quantitative vegetation monitoring of the tailing facility in 2018 and 2019. The study will be towards financial assurance bond release of the tailing facility.

Cyprus therefore requests to:

1. Modify the post mine land use of wildlife habitat and grazing as indicated in Condition 4.G of Permit LU008RE to only include wildlife habitat. This change is being requesting because it has been determined that grazing will not be conducted at this site in the foreseeable future.
2. Modify vegetation success standard to include a 60 percent shrub density (of the reference area). The proposed standard attached accurately reflects the industry standard and will be consistent with the MMDs requirements for similar industries.
3. Propose a new vegetation reference area due to property access restrictions on the currently approved site.


Enclosed for your reference are a draft of the proposed changes to the Deming CCP to reflect the proposed vegetation monitoring and success criteria, proposed draft language

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for the permit modification and Figure 1 which shows the location and coordinates the proposed new vegetation reference area.

Cyprus appreciates your assistance in processing this application. Find enclosed the application fee in the amount of a \$1,000 check. Please contact Mr. Thomas Shelley on 575-912-5773 or Ms. Rita Lloyd-Mills on 575-912-5778 if you have any questions regarding this submittal.

Sincerely,

A handwritten signature in black ink that reads "Joseph A. Brunner". The signature is written in a cursive, flowing style.

Joseph A. Brunner, Director
Discontinued Operations
Cyprus Pinos Altos Corporation

JAB:rlm
20180816-001
Enclosure

c: Mr. Kurt Vollbrecht, NMED

**PERMIT MODIFICATION 18-1 TO PERMIT NO. LU008RE
DEMING TAILING IMPOUNDMENT
EXISTING MINING OPERATION**

**MINING AND MINERALS DIVISION
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT**

Permit Modification 18-1 to Permit No. LU008RE is issued by the Director of the Mining and Minerals Division (MMD) of the New Mexico Energy, Minerals and Natural Resources Department to:

Cyprus Climax Metals Company
whose correct address is: Chino Mines Company (Chino)
210 Cortez Ave
Hurley, NM 88043

(Permittee) for the Deming Tailing Impoundment located in Luna County, New Mexico.

This Permit Modification incorporates changes to the requirements of Permit Revision 09-1 to complete the closeout plan, addressed in language found in Sections 4.0 and 9.0 of Permit No. LU008RE. This change was requested in the Permittee's modification application, dated August 15, 2018.

The following sections of Permit No. LU008RE are added and revised to read as follows:

Section 1a. **PERMIT APPLICATION PACKAGE**

H. The Permit Modification is comprised of the following documents:

- 1) Application for Modification to Permit No. LU008RE, Section 2.0, dated August 15, 2018, 2011.
- 2) Modified language for the closeout plan for section 2.6 to establish a wildlife post-mining land use and section 2.8 that describes the reclamation plan and revegetation success monitoring
- 3) Figure 1 identifying the location of the proposed reference area

Section 4. **FINDINGS OF FACT**

G. The approved Post-Mining Land Use (PMLU) for the entire permit area is wildlife habitat. The Closeout Plan demonstrates that the work to be done will reclaim disturbed areas within the permit area to a condition that allows for the re-establishment of a self-sustaining ecosystem on the permit area following closure, appropriate for the life zone of the surrounding areas.

J. According to § 506.B, a proposed closeout plan or a proposed closeout plan for a portion

of the mine shall include a detailed description of how the permit area will be reclaimed to meet the requirements of Section 69-36-11 B(3) for the Act and the performance and reclamation standards and requirements of Subpart 5. Reclamation of the permit area and the performance and reclamation standards of Subpart 5 are addressed as follows:

- 1) The closure design for the Deming tailings impoundment includes:
 - a) evaporation of remaining water,
 - b) folding the exposed liner over the tailings,
 - c) covering the tailings with 18 to 24 inches of locally-sourced growth media contained in the embankment and stockpiles,
 - d) grading the cover to enhance runoff while limiting erosion, and
 - e) revegetating all surfaces with a seed mix approved by NMEMNRD/MMD.

The Closeout Plan dated August 9, 1996 and modified August 15, 2018 contains further specifics on reclamation requirements.

- 2) Revegetation success will be determined by monitoring the vegetation parameters of canopy cover and shrub density and comparing these values to a reference area for a minimum of 12 years. The reference area will be established through discussion with NMEMNRD/MMD.
- 3) Technical guidance procedures published by the US Department of Agriculture, or other methods approved by the NMEMNRD/MMD will be used to conduct sampling. Canopy cover will be established to within 70 percent of the reference area. Shrub density will be established to within 60 percent of the reference area.
- 4) Vegetation monitoring of the reference and reclaimed areas will be conducted once per year following the growing season. Two seasons of growth meeting the above standard, beginning in year 11 after initial seeding, will be the time criteria for defining revegetation success. In the event that an area does not meet the vegetation standards, the area will be investigated, and steps taken to identify the cause of the problem.
- 5) All surface pipelines, poles, and signs will be removed. Buried pipelines and electrical conduits will be left in place. The access road to the impoundment will be scarified and revegetated.
- 6) To prevent damage to newly seeded and revegetated areas, these areas will be protected by fencing until revegetation has been deemed successful. The Permittee will install several raptor perches around the reclaimed impoundment to control small mammals which could adversely affect the revegetation efforts.
- 7) The Permittee will monitor five groundwater monitoring wells for various

Section 9 CONDITIONS

B. MMD approval of the final revegetation success standard is contingent upon MMD approval of a reference area. The Permittee will propose a reference for MMD approval within one year after Closeout Plan approval. The reference area will be monitored as required by the Closeout Plan.

H. Within one year of Closeout Plan approval, The Permittee will provide MMD modified

language regarding the revegetation standards and monitoring methods proposed in the Closeout Plan. The Permittee will include a canopy cover and shrub density standard, and describe in detail the methods to be used in evaluating cover and shrub density on the reclaimed and reference areas.

- UU. The \$1000.00 modification application fee, pursuant to Subsection H of 19.10.2.201 NMAC, was paid on June 15, 2011.
- VV. Pursuant to Section 19.5.505.B (1), the Director has determined that the proposed modification will not have a significant environmental impact.
- WW. Pursuant to Section 19.5.505.B (3) NMAC, the Director has consulted with the appropriate agencies in approving this modification.

Section 2.6 Post Mining Land Use

Section 2.8.1 Revegetation Performance Standards

1. Proposed Reference Area
2. Reclamation Monitoring Methods and Schedule (monitoring only for 2 years)
3. Revegetation Performance Standards

All other provisions, modifications, and revisions for mining and reclamation contained in the Deming Tailing Impoundment Permit No. LU008RE, remain unchanged.

Section 10. CONCLUSIONS OF LAW

- A. The Director has jurisdiction over the Permittee and the subject matter of this proceeding.
- B. The PAP is complete, accurate, and complies with the requirements of the Act and §19.10.5.502 and §19.10.5.503 of the Rules and with conditions described in this Permit Modification document.
- C. The PRP is complete, accurate, and complies with the requirements for Closeout Plans in the Act and §19.10.5.505, §19.10.5.506, and §19.10.5.507.A NMAC. The Permittee, Chino, is permitted, pursuant to the New Mexico Mining Act, to conduct mining and reclamation operations at the Cyrus Deming Tailing Site, Luna County, New Mexico, upon the condition that the Permittee complies with the requirements of the Order, the Act, the Rules, the Permit Conditions, and requirements imposed by this Decision.

CERTIFICATION

I certify that I have read, understand and will comply with the requirements of this Permit Modification.

Authorized Representative of the Permittee

Permit Modification 18-1 To Permit LU008RE
Deming Tailing Impoundment
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Title

Company

Subscribed and sworn to before me this ____ day of _____, 2011

Notary Public

My Commission Expires

_____, 2____

ORDER

NOW THEREFORE, IT IS HEREBY ORDERED that Permit Modification 18-1 of Permit No. LU008RE, incorporating changes to Section 2.0 of the closeout plan for the Cyprus Deming Tailing Impoundment, located in Luna County, New Mexico, is approved. The Permit may not be transferred without approval by the Director. The Permit is subject to all conditions set out in the Director's Findings of Fact, General Obligations and Conditions, Conclusions of Law, and Order.

By Order of the Director, Mining and Minerals Division, Energy, Minerals and Natural Resources Department, of the State of New Mexico.

Mining and Minerals Division

By: _____
Bill Brancard, Director
Mining and Minerals Division
Energy, Minerals and Natural Resources Department

DATED: _____

2.6 Revegetation

The revegetation plan is designed to create a stable, self-sustaining plant community, and will be in conformance with the planned post-mining land use (PMLU) of wildlife habitat. The dominant biotic communities of the tailings impoundment area are semi-desert grassland and Chihuahuan desert scrub. The biotic community is dominated by semi-desert grasses with a mixture of shrubs.

Few animal species use the desert scrub community due to its general harshness. The semi-desert grassland community supports a wide diversity of insects and provides suitable habitat for a variety of animals. Most of the grasses are important as forage and provide watershed protection. A list of observed vegetation and wildlife species is located in Appendix D. Due to the lack of surface water, the tailings impoundment area provides no aquatic environment.

2.8 Post-Closure Monitoring

2.8.1 Reclamation Inspections

The Deming Tailing Impoundment will be inspected annually to evaluate the progress of the reclaimed plant community. All monitoring will be conducted in the early fall (Late September or early October), before the first hard frost. Results of each year's inspection will be reported to MMD in the annual report due on April 30.

Annual reclamation inspections will qualitatively evaluate vegetation performance, forecast reclamation success, and assess the need for implementing any husbandry practices or corrective actions. Both the reclaimed and reference areas will be thoroughly traversed and digital photos will be taken to document the general condition of the sites. Specifically, the inspection will appraise:

1. Total canopy cover;
2. Plant community condition;
3. Plant species encountered;
4. Evidence of excessive erosion.

If an issue is identified during an annual inspection that has the potential to jeopardize reclamation success, MMD will be notified and a mitigation plan will be developed to correct the problem.

2.8.1.1 Revegetation Monitoring

Quantitative vegetation monitoring of the reclaimed and reference areas was performed in 2004, 2005, 2006, 2011, and 2013 to track the progression of the vegetation and determine if revegetation performance standards are achievable. Qualitative vegetation inspections of the reclamation also occurred in 2001, 2007, and 2008.

Reclamation success for bond release will be determined based on the comparison of quantitative vegetation monitoring of the reclaim and reference areas typically performed in years 11 and 12. Due to

the outslope corrective action performed in June 2007, quantitative vegetation monitoring for bond release for the entire impoundment will be conducted in 2018 and 2019. Vegetation monitoring field work will be scheduled in late September or early October at the end of growing season.

A systematic random sampling scheme using a transect/quadrat system will be employed to select sample sites within the reclaimed and reference areas. A 10-meter (m) center square grid will be imposed over each vegetation monitoring unit to delineate vegetation sample plots and random coordinates will be used to select plots for vegetation sampling. Transects will originate from the southeastern corner of the selected vegetation plot. Each transect will be 20-m in a dog-leg pattern. Four 1-m² quadrats will be located at pre-determined intervals along the transect for quantitative vegetation measurements. From a statistical perspective, each quadrat is considered an independent sample. Given the small size of both the impoundment and the reference area, a total of 32 samples will be collected in either area.

Quantitative vegetation data (e.g., canopy cover, basal cover, frequency, and shrub density) will be collected using methods that have been approved by the MMD for other FMCG properties (DBSA 1999a and 1999b). Prior to each sampling event, species occurrence will be determined by traversing the plots and listing all species encountered. Plant frequency will be determined on a species basis by counting the number of individual plants within the quadrat. Ocular methods will be used to measure canopy cover, basal cover, surface litter, rock fragments, and bare soil. All cover estimates will be made in 0.1 percent increments and percent area cards will be used to increase the accuracy and consistency of the cover estimates. Each transect and quadrat will be photographed to document the existing conditions and will be included with the field sheets as part of the reporting.

Canopy cover is defined as the percentage of the quadrat area included in the vertical projection of the canopy (Daubenmire, 1968). The canopy cover estimates will include the foliage and foliage interspaces of all the individuals rooted in the quadrat. The data for total canopy cover does not include multiple layers and the sum of the total canopy cover, surface litter, rock fragments and bare soil equal 100 percent. The canopy cover estimates made on a species basis represent relative canopy cover and may exceed 100 percent if a layered canopy exists. Basal cover is defined as the portion of the ground occupied by the crowns of grasses and rooted stems of forbs and shrubs. In addition, basal cover estimates will also be made for surface litter, rock fragments and bare soil. Like the total cover estimates, the sum of the basal cover estimates is equal to 100 percent.

Shrub density, or the number of plants per square meter, will be determined using the belt transect method (Bonham, 1989). Shrub density will be determined from a 2-meter wide by 20-meter long belt transect along the perimeter of the dog-legged transect. All shrubs rooted within the belt transect will be counted as occurring within the belt transect. Counts will be made on a species basis.

2.8.1.2 Reclamation Success Guidelines

FMCG proposes to demonstrate revegetation success at the Deming site by comparative analysis of data collected from the reclaim and reference areas. Geo Southwest, Ltd who controls the ASARCO mill, tailings impoundments and the majority of the property north and east of the Deming site, has agreed to

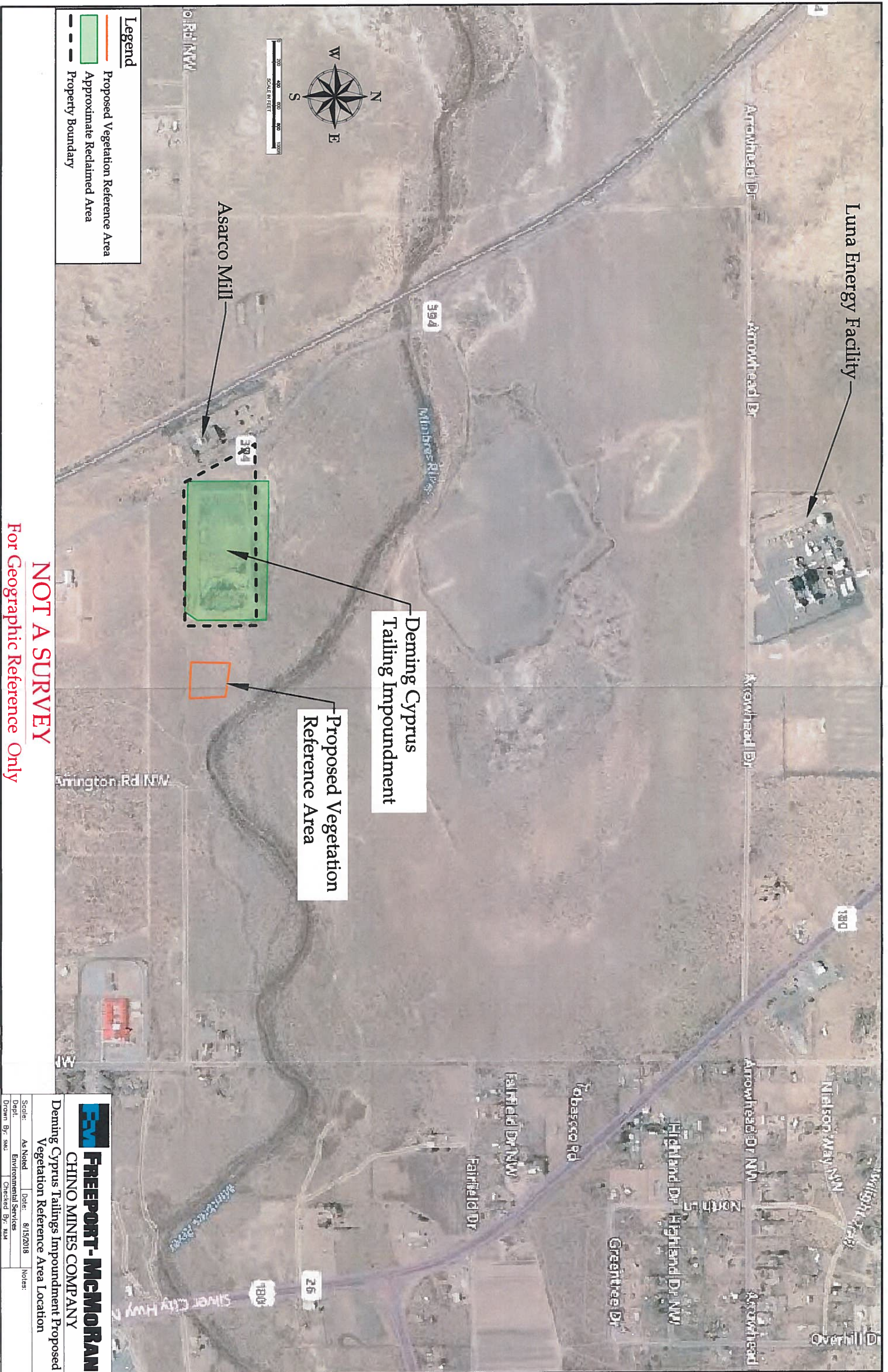
allow FMCG to establish a native reference area immediately east of the impoundment (Figure 1). The technical standards for revegetation success are based on the wildlife PMLU revegetation success guidelines (MMD, 1996), interpretation of vegetation data collected to date at the Deming site and the ecological site potential of the area, and the anticipated differences in community structure among the reference area and reclaimed lands. The required 12-year bond release period is thought to be a sufficient amount of time to demonstrate that the reclaimed area is on a successful and sustainable reclamation path.

The primary success criteria for the Deming site will be canopy cover and shrub density. Canopy cover is an important determinant of the soil erosion process. Woody shrubs provide both cover and forage for wildlife habitat. FMCG does not propose a numerical standard for plant diversity, rather, a species list will be developed to demonstrate that the reclaimed site recruits and support a broad range of plants and possesses vegetative attributes similar to the surrounding areas. A complete listing of species in reclaimed areas will complement the species composition data from the quadrats.

A proportional success guideline for total perennial cover equal to 70 percent of the measured reference area value is proposed. This numerical guideline will increase or decrease based on the reference area measurements, but the proportional guideline (70 percent) will remain fixed. In other words, the target numerical guideline will be modified to account for temporal changes in perennial cover associated with annual climatic variations.

For shrub density, a proportional success guideline of 60 percent (of the reference area) is proposed. Because shrubs are long lived and are a more permanent component of the plant community, we propose that the shrub density standard need only be met in one of the two vegetation surveys of the bond release period. In other words, if the shrub density standard is achieved in the first year of the bond release monitoring, additional measurements will not be made in the final year.

The minimum number of samples required to meet sample adequacy will be calculated based on a statistical confidence level of 80% or an alpha of 0.2. Sample adequacy will be calculated depending on the distribution of the data (normal versus non normal). For normally distributed data, sample adequacy will be calculated using Snedocor and Cochran (1967). Hofmann and Ries (1990) will be used to determine sample adequacy for data that are not normally distributed. FMCG recognizes that statistical adequacy may not be achieved at either the reclaimed and reference areas because of their limited size and the dispersed-clumped character of semi-arid plant communities. An appropriate one-sided hypothesis test will be used to compare reclamation to the reference area standard and determine whether the difference in population means is greater than zero. Either a parametric or non-parametric hypothesis testing method will be selected based on the normality of the data and will be performed at the 80% level of confidence.



NOT A SURVEY
 For Geographic Reference Only



FREEPORT-McMORAN
 CHINO MINES COMPANY

Denning Cyprus Tailings Impoundment Proposed
 Vegetation Reference Area Location

Scale:	As Noted	Date:	8/15/2018	Notes:
Dept:	Environmental Services	Drawn By:	sms	Checked By:
			RLM	