



Phoenix Corporate Office
333 N. Central Ave.
Phoenix, AZ 85004

Jennifer Laggan
Manager, Remediation Projects
Telephone: (720) 942-3370
Mobile: (303) 249-4273
Email: jlaggan@fmi.com

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VIA ELECTRONIC DELIVERY AND FEDERAL EXPRESS

Ms. Nichole Osuch, PM
Arizona Department of Environmental Quality
Voluntary Remediation Program
1110 West Washington Street Mail, 6th Floor
Phoenix, Arizona 85007

**Re: Request for No Further Action
Morenci Unified School District, Morenci Arizona
VRP Site Number 513333-00**

Dear Ms. Osuch:

Freeport Minerals Corporation (FMC) is requesting a No Further Action (NFA) determination from the Arizona Department of Environmental Quality (ADEQ) for portions of the Morenci Schools Site in Morenci, Arizona (Site). Arcadis U.S., Inc. (Arcadis) has prepared this No Further Action Request on behalf of FMC to provide the information required for a No Further Action determination in accordance with the Arizona Revised Statutes (A.R.S.) §49-181(A).

Project Background

The Site is approximately 72 acres and is occupied by the Metcalf Elementary School and Early Childhood Center (herein after referred to as the Elementary School); Fairbanks Middle School; Morenci High School; the School District administration building; a bus barn; and parking lots, play areas, and sports fields associated with the schools. A portion of the school complex is built on top of a former mine tailings storage facility.

FMC entered the Site into the ADEQ Voluntary Remediation Program (VRP) (Arizona Revised Statute ARS 49-171 through 188) by submitting a VRP application to ADEQ on November 14, 2019. ADEQ approved the application on December 20, 2019 and assigned the Site Code 513333-00.

Summary of the Site Characterization and Risk Assessment

Arcadis conducted a surface and subsurface sampling program at the Morenci Schools Property (Morenci Schools Site Soil Sampling Program) on behalf of FMC in accordance with the ADEQ

approved *Sampling and Analysis Plan*¹, dated December 23, 2019 and the *Quality Assurance Project Plan*², dated December 20, 2019.

The SAP was initially submitted to ADEQ on December 18, 2019. The SAP was revised to incorporate comments from ADEQ and resubmitted on December 23, 2019. The SAP was approved by ADEQ on January 3, 2020. The QAPP was initially submitted to ADEQ on December 20, 2019, revised to incorporate comments from ADEQ, resubmitted on January 2, 2020, and approved by ADEQ on January 3, 2020.

Site characterization included collecting shallow soil samples from accessible areas of the 72-acre Site. The site was divided into sub-areas (use areas or grids) that were approximately equal in size (200 ft by 200 ft; 40,000 square feet [SF]). As defined by the SAP, accessible areas are those portions of a use area that represent a potential for direct contact with surface soil that is either bare or covered by vegetation, landscaping, or gravel. Use areas immediately surrounding the Metcalf Elementary School, Fairbanks Middle School, and Morenci High School buildings that met the definition of “accessible area” were sampled. Sampling these areas targeted the high foot traffic areas around school buildings and playgrounds. Targeted sampling was not pursued for the areas around the bus barn, Maintenance Buildings, and Administration Building because these buildings are mostly surrounded by parking areas and are not occupied by students. The remaining grids away from the school buildings were selected as individual use areas using a random start systematic sampling grid approach. Using the data collected from the site characterization activities, Ramboll US Consulting, Inc. (Ramboll), on behalf of FMC, prepared a Probabilistic Risk Assessment (PRA) to evaluate risks from potential exposures to arsenic in soil and tailings at the Morenci School complex.

Requirements for a No Further Action Determination

The seven requirements for a No Further Action determination as specified in the A.R.S. §49-181(A) are provided below.

A.R.S. §49-181(A.1) A description of the specific contaminants for which a no further action determination is being sought.

A Site Characterization Report completed in 2020³ identified arsenic as the only chemical of potential concern at the Site. As shown in Table 1 below (excerpted from Table 8 of the Site Characterization Report), the other target constituents that were detected in soil and tailings samples collected from locations across the school complex where students, faculty, and staff may be present were below the ADEQ state-wide residential soil remediation levels (SRLs).

¹ Arcadis. 2019. Sampling and Analysis Plan. Morenci Schools Site Soil Sampling Program. Morenci, Arizona. VRP Site Code: 513333-00. Arcadis. Lenexa, Kansas. December 23.

² Arcadis. 2019. Quality Assurance Project Plan. Morenci Schools Site Soil Sampling Program. Morenci, Arizona. VRP Site Code: 513333-00. Arcadis. Lenexa, Kansas. December 23

³ Arcadis. Site Characterization Report. Morenci Schools Site. Morenci, Arizona. VRP Site Code: 513333-00. Arcadis. Lenexa, Kansas. June 29.

Tailings do not appear to be a source of elevated metals at the Site. The naturally occurring topsoil and fill material imported to the Site during the construction of the school complex have higher arsenic concentrations compared to the tailings. The source of the arsenic in topsoil and fill material is not known and could be representative of background levels in the naturally occurring materials or anthropogenic. The background levels of the topsoil and fill material cannot be established because the source location of the imported materials is unknown and occurred over many years of time as the school complex was constructed and expanded.

Table 1 - Range of Concentrations Detected in Soil Samples

Target Constituent	Soil Remediation Levels (mg/kg) ⁽¹⁾	Minimum (mg/kg)	Maximum (mg/kg)
Aluminum	76,000	409	15,300
Antimony	31	3.16	7.11
Arsenic ⁽²⁾	10	0.556	37.1
Barium	15,000	18.3	295
Beryllium	150	0.0393	5.33
Cadmium	39	0.093	8.35
Calcium	---	1,060	83,600
Chromium	120,000 ⁽³⁾	1.02	103
Cobalt	900	0.166	14.8
Copper	3,100	5.69	2,580
Iron	---	5.890	31,000
Lead	400	1.66	145
Magnesium	---	75	5,470
Manganese	3,300	4.04	2,040
Mercury	23	0.011	0.206
Molybdenum	390	1.06	135

Target Constituent	Soil Remediation Levels (mg/kg) ⁽¹⁾	Minimum (mg/kg)	Maximum (mg/kg)
Nickel	1,600	0.889	56.2
Potassium	---	443	2,450
Selenium	390	1.86	1.86
Silver	390	0.182	2.04
Sodium	---	31.7	1,200
Thallium	5.2	Not detected	Not detected
Vanadium	78	0.838	63.4
Zinc	23,000	2.82	436

Notes:

- (1) mg/kg – milligrams per kilogram
- (2) The arsenic SRL is not a risk-based standard but is based on an average state-wide background
- (3) Chromium III

The PRA⁴ was completed in 2021 included a screening level assessment that concluded that SRLs and other screening levels based on a residential scenario are protective of a school scenario. Of the potential receptors that may be present in a school scenario, children are the most sensitive.

The National Oil and Hazardous Substances Pollution Contingency Plan⁵ established that acceptable exposure levels are generally concentration levels that represent an incremental upper-bound lifetime cancer risk in the range from 10⁻⁴ to 10⁻⁶ or less. The state of Arizona has adopted this lifetime cancer risk range in its VRP Statute, Arizona Revised Statute (A.R.S.) 49-175.B.2 & 49-152.B.2.

The PRA included an assessment of risks to a child attending the schools and to an adult school staff member. The results of the risk assessment are summarized in Table 2, and show that the combination of exposure parameter distributions, point estimates, and school-specific arsenic data used to develop the PRA model for the Site resulted in a cumulative 95th percentile

⁴ Ramboll. 2021. Probabilistic Risk Assessment for the Morenci School Complex. Morenci, Arizona. Ramboll US Consulting, Inc. Seattle, Washington. January 22.

⁵ USEPA. 1991. Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. OSWER Directive 9355.0-30. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. Also 29 CFR 1910.120, 40 CFR 300.430.

Lifetime Excess Cancer Risk (LECR) estimate of 5×10^{-7} for the student, well below the acceptable range described above.

Additionally, the sports fields area was evaluated to account for subareas with higher concentrations. For the sports field's scenario, the 95th percentile LECR estimate was 6×10^{-7} for the student and 3×10^{-7} for the adult staff member. These values are below the range of LECR estimates considered acceptable by the USEPA and ADEQ. The PRA results therefore indicate that incremental excess lifetime cancer risks to students and staff members resulting from potential exposure to arsenic in soil at the Morenci School Complex are below acceptable target levels.

Table 2 - Probabilistic Risk Assessment Results for Arsenic

Exposure Scenario	96 th Percentile LECR Estimate			
	Ingestion	Dermal	Inhalation	Cumulative
Student (school-specific)	4×10^{-7}	1×10^{-7}	1×10^{-10}	5×10^{-7}
Student (sports fields)	5×10^{-7}	1×10^{-7}	2×10^{-10}	6×10^{-7}
Adult Coach (sports fields)	2×10^{-7}	1×10^{-7}	3×10^{-10}	3×10^{-7}
Student and Coach (sports fields sum)	7×10^{-7}	2×10^{-7}	5×10^{-10}	9×10^{-7}

Notes:

LECR – Lifetime Excess Cancer Risk

As a worst-case scenario, risk estimates for the sports fields were added for the student and adult worker, assuming the same receptor attends the Morenci School Complex schools as a child and later works at the Site as an adult throughout their entire occupational tenure. This student-to-worker scenario resulted in a 95th percentile LECR estimate of 9×10^{-7} , which remains below the USEPA's and ADEQ's acceptable risk range.

A.R.S. §49-181(A.2) A description of the actions taken to achieve remediation levels or controls determined in accordance with Section 49-175, subsection B.

As previously discussed, FMC has completed the Site Characterization and PRA to evaluate the Site. The results of the PRA suggest that, for reasonable exposure scenarios, including a worst-case student-to-worker scenario, the resultant 95th percentile risk estimates are below the lower end of USEPA's and ADEQ's acceptable risk range.

A.R.S. §49-181(A.3) A description of any soil, water, or soil and water treatment systems used as part of the remediation.

There are no soil, water, soil and water treatment systems used at the site; therefore, this regulatory provision is not applicable.

A.R.S. §49-181(A.4) Whenever institutional or engineering controls are placed on the site:

- (a) A demonstration that any engineering control or combination of engineering controls has been constructed, is functioning, and will be maintained.

Since the PRA did not identify any exposure scenario that presented an excessive risk, engineering controls are not warranted for this site - this regulatory provision is not applicable.

(b) A description of the proposed land use for the site and a demonstration that the use will not compromise the integrity of the engineering controls and will be in accordance with any institutional controls.

Since the PRA did not identify any exposure scenario that presented an excessive risk, engineering controls are not warranted for this site. Therefore, this regulatory provision is not applicable.

A.R.S. §49-181(A.5) If post-remediation monitoring is proposed, a description of the type of monitoring, monitoring locations, contaminants to be monitored, monitoring frequency and sampling procedures.

Post-remediation monitoring is not warranted and therefore, the regulatory provision not applicable.

A.R.S. §49-181(A.6) A description of community involvement activities undertaken to meet the requirements of section 49-176.

During planning for the Site Characterization Sampling, FMC met with the School Superintendent, Dr. Woodall, to discuss the sampling field activities and to coordinate the sampling schedule to minimize the impact to school operations. Prior to the implementation of field work, Dr. Woodall communicated with the school community to inform school staff and parents of the extent and duration of sampling. Additionally, the Site Characterization work plans and summary report were approved by ADEQ and are listed on the ADEQ 'My Community' page in the Voluntary Remediation Program site: (<http://www.azdeq.gov/morenci-schools-vrp-site>).

The PRA and this NFA request will be published for Public Notification in two consecutive weekly editions of The Copper Era newspaper upon approval by ADEQ. The public comment period will extend 30 days from the date of the first publication, as required by ARS 49-171-3(a). The following documents will be available for public review on ADEQ's website at <http://www.azdeq.gov/notices>, and at the ADEQ Records Center (see Attachment 2 for more detail):

- *Site Characterization Report, Morenci Schools Site, Morenci, Arizona. VRP Site Code: 513333-00. Prepared by Arcadis for FMC, April 17, 2020.*
- *Probabilistic Risk Assessment for the Morenci School Complex. Morenci, Arizona. Prepared by Ramboll for FMC, January 22, 2021*
- *This No Further Action Report for the Morenci Schools Site Voluntary Remediation Program. February 25, 2021.*

A.R.S. §49-181(A.7) A list of permits under this title obtained for the remedial action or held by the applicant pertaining to the Site.

Not applicable.

In accordance with A.R.S. §49-176(A)(3), FMC will notify the following stakeholders of the public notice and comment period:

- Morenci Schools – Dr. Woodall

FMC appreciates ADEQ assistance with the Morenci Schools Site project and consideration of our request for a Conditional No Further Action (CNFA) determination. If you have any questions, please contact me at (303) 249-4273 or jlaggan@fmi.com.

Very truly yours,

FREEMPORT MINERALS CORPORATION

A handwritten signature in blue ink that reads "Jennifer Laggan". The signature is written in a cursive style.

Jen Laggan
Manager, Remediation Projects

Enclosure

Cc: Bryce Romig/FMC
Scott Green/ADEQ