

Freeport Minerals Corporation

# Remedial Action Work Plan

**Clifton Soil Program**

**Clifton, Arizona**

**VRP Site Code: 513293-00**

November 19, 2021

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Figure 1 Clifton Soil Program Study Area

Figure 2 Location of Temporary Soil Stockpile Area

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Appendix A Clifton Fugitive Dust Control Plan

## Acronyms and Abbreviations

ACC	Arizona Copper Company
ADEQ	Arizona Department of Environmental Quality
BSA	Backfill Staging Area
CC	Construction Contractor
CHSC	Contractor's Health and Safety Coordinator
CL	cleanup level
CPC	Construction Project Coordinator
CSP	Clifton Soil Program
FDCP	Fugitive Dust Control Plan
FMC	Freeport Minerals Corporation
HASP	Health and Safety Plan
mg/kg	milligram per kilogram
PCCR	Property Cleanup Completion Report
PRA	probabilistic risk analysis
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RAWP	Remedial Action Work Plan
SAP	Sampling and Analysis Plan
TC	target constituent
TCLP	Toxicity Characteristic Leaching Procedure
TSSA	Temporary Soil Staging Area
USEPA	United States Environmental Protection Agency
VRP	Voluntary Remediation Program

# 1 Introduction

This Remedial Action Work Plan (RAWP) presents implementation details for soil remediation (i.e., cleanup) to be performed by Freeport Minerals Corporation (FMC) for residential, non-residential, and publicly owned developed properties near the former smelter operations in Clifton, Arizona (the site), as shown on Figure 1.

Because the historical copper smelters operated before emissions control equipment was commonly used (see Section 1.1), historical air emissions from the smelters may have deposited metal-bearing particles on nearby soil. FMC has elected to enter into the Arizona Department of Environmental Quality's (ADEQ's) Voluntary Remediation Program (VRP; Arizona Revised Statute ARS 49-171 through 188) to address the potential that historical smelter operations may have contributed to elevated metals concentrations in soil on properties near the historical smelter operations. Under the VRP, FMC is performing a soil characterization and remediation program known as the Clifton Soil Program (CSP). The Study Area for the CSP is shown on Figure 1 (the Study Area). ADEQ approved the VRP application on August 21, 2019, and the CSP was assigned Site Code 513293-00.

The Study Area delineates the developed areas in which soil concentrations of metals above applicable soil remediation levels approved by ADEQ (hereinafter referred to as Cleanup Levels [CLs]) may potentially be associated with air emissions for metals associated with the historical smelter operations. In the case of the CSP, the Study Area includes all residential, public, and commercial properties within Clifton. Chase Creek runs through the eastern third of the Study Area, as do active railroad tracks. Land use in the southern and eastern areas along Chase Creek and the San Francisco River is industrial and commercial.

The CSP is giving owners of eligible residential, non-residential (e.g., commercial), and public properties (e.g., parks) within the Study Area the opportunity to have the soil on their property sampled and tested for certain smelter-related metals (i.e., target constituents [TCs]) and, if necessary, remediated (i.e., soil removed and replaced – hereinafter referred to as “Cleanup”). FMC is performing the CSP with oversight by ADEQ.

Eligible properties are those within the Study Area that either are developed or planned for development and have sufficient accessible area (as defined in Section 3.0) for both sampling and, if required, cleanup. Undeveloped properties, which are not eligible, include large properties used for agriculture (e.g., farming, pasture) and those that consist of an open area that has not been planned for development. Discrete portions of undeveloped properties that have a structure and use areas typical of a residential property are included in the CSP. Approximately 900 to 950 properties in the Study Area are estimated to be eligible for sampling under the CSP.

Zoning designations have been considered when determining whether a property is eligible for soil sampling. The CSP also considers the current use of the property and whether approved development plans and permits exist for the property.

Industrial properties are not included within the CSP, as they represent different exposure scenarios and human health risk considerations. In addition, industrial operations generally represent sources of metals and other contaminants that have no relation to or would be indistinguishable from the historical smelter operations.

Soil sampling for the CSP began in May 2021. Sampling is being performed in accordance with the Sampling and Analysis Plan (SAP; Arcadis 2021a) and the Quality Assurance Project Plan (QAPP; Arcadis 2021b), which were both approved by ADEQ on April 14, 2021. The sampling is designed to determine representative concentrations of arsenic, lead, and copper for properties in the Study Area for comparison to site-specific cleanup levels approved for the CSP by ADEQ.

A probabilistic risk assessment (PRA; Ramboll 2021) was submitted as a separate document to establish site-specific TCs and remediation CLs for the CSP. ADEQ provisionally approved the PRA on January 29, 2021. Following a 30-day public comment period, the PRA was approved by ADEQ on April 9, 2021.

## 1.1 Soil Cleanup Objectives

The objective of the CSP cleanup is to excavate and replace soil within individual use areas where soil concentrations of arsenic, lead, or copper exceed the CLs approved by ADEQ and replace with “clean” soil that meets the CLs, as verified by sampling and analysis for the target constituents, in addition to analysis for RCRA metals, volatile organic chemicals, semi-volatile organic chemicals, polychlorinated biphenyls, pesticides, and herbicides. The purpose of this RAWP is to provide the specific implementation details for achieving that objective. The CLs for the CSP are included in Table 1 below.

Table 1 - Cleanup Levels for the Clifton Soil Program

Target Constituent	Residential Land Use Soil Cleanup Level (mg/kg)	Non-Residential Land Use Soil Cleanup Level (mg/kg)
Arsenic	30 <sup>(1)</sup>	30 <sup>(2)</sup>
Lead	425 <sup>(1)</sup>	800 <sup>(3)</sup>
Copper	9,000 <sup>(1)</sup>	41,000 <sup>(3)</sup>

**Notes:**

- (1) The site-specific residential CLs for arsenic, lead, and copper established in the PRA.
- (2) The non-residential CL for arsenic is set equal to the residential CL, consistent with the approach used by ADEQ for pre-determined values.
- (3) Pre-determined CLs specified in AAC R18-7-205 (ADEQ 2009).  
mg/kg = milligram per kilogram

The PRA (Ramboll 2021) for the Clifton area evaluated exposures to the TCs at residential properties following ADEQ and United States Environmental Protection Agency (USEPA) risk assessment guidelines. Accordingly, the site-specific CLs established in the PRA are protective of residential exposures.

Rather than develop another PRA that evaluated different types of non-residential exposures (e.g., shopping centers, office buildings, warehouses, hotels, hospitals), FMC chose to use ADEQ’s pre-determined non-residential soil remediation levels, Arizona Administrative Code Title 18, Chapter 7 (ADEQ 2009), for copper and lead.

For arsenic, Table 1 uses the site-specific CLs developed in the PRA for both residential and non-residential properties. This is consistent with how ADEQ developed its pre-determined non-residential soil remediation level for arsenic. It also is very conservative (i.e., protective) because it requires arsenic in soil at non-residential properties to be cleaned to a residential exposure-based standard.

## 2 Project Administration

The project administration activities for the cleanup program will include:

- Coordination among representatives of FMC, ADEQ, Construction Project Coordinator (CPC), Construction Contractors (CCs), and town officials;
- Technical oversight of project activities;
- Administration of the CCs.

### 2.1 Organization

The cleanup program organization will consistently manage the cleanup and integration with the ongoing sampling program. The key positions for this organization are:

- FMC Project Manager;
- CPC (i.e., Arcadis);
- CCs;
- ADEQ.

These key positions have been developed to manage and implement the organization, objectives, functional activities, quality assurance/quality control (QA/QC) activities, and data reporting in a manner that meets the requirements of this RAWP. FMC will assign the CPC and CCs with notification to ADEQ.

The FMC Project Manager will coordinate with ADEQ on the overall RAWP project activities. The CPC will coordinate construction activities with FMC, the CCs, the property owner, and ADEQ. The CPC will oversee and manage the CCs, who will implement the cleanup in accordance with this RAWP and the QAPP (Arcadis 2021b).

### 2.2 Workflow

The cleanup of individual properties will be prioritized as described in Section 4.1. After the priority of the property is determined, cleanup will be scheduled to facilitate logistics and use of equipment. Properties will be scheduled for cleanup after access is received and, when possible, generally grouped into neighborhoods to enable the crews to coordinate required activities and reduce disruption to the neighborhood. The progress of the cleanup program will be documented in monthly progress reports to ADEQ issued by the FMC Project Manager or the CPC. Specific details regarding progress reporting are described in Section 5.2.

## 3 Cleanup

In general, the CSP soil cleanup activities will include:

- Excavation of soils within use areas that have concentrations of arsenic, lead, or copper higher than ADEQ-approved CLs;
- Replacement of those excavated soils with clean backfill;
- Replacement of landscaping with materials that, unless otherwise approved by the property owner, are comparable to the pre-existing conditions;
- Temporary and final management of the excavated soils.

Implementation details for the activities described above are provided in this section. Properties identified as containing areas with soil impacts exceeding the ADEQ CLs that will not be remediated may include areas that present significant safety or property damage concerns, such as deteriorating retaining walls. If the property owner completes future activities/repairs to adequately address the concerns, FMC will consider soil remediation at that time.

### 3.1 Property-Specific Cleanup

This section describes cleanup construction activities to be performed at individual properties. Included in this section are the details for obtaining access, pre-excitation use area preparation, excavation, noise control, dust control, maintaining access for the property residents, decontamination procedures, backfill and revegetation procedures, and follow-up activities.

#### 3.1.1 Property Access

Cleanup construction activities at a particular property will proceed after a property owner has signed an access agreement for cleanup. If the property is occupied by a tenant instead of the owner, the tenant may also be requested to sign the access agreement. However, FMC will consider moving forward without the tenant access agreement if directed by the property owner. The cleanup access agreement is separate and additional to the soil sampling access agreement previously obtained.

Specific cleanup details will be developed on a property-by-property basis. Individual property cleanup work plans will be prepared for each property to identify the soil removal areas, excavation depths, and revegetation requirements. Cleanup work plans will be reviewed with the property owner and tenant, if applicable, during a pre-excitation property inspection. The inspection will be attended by the property owner or their representative, the tenant (if they request to be present and are available), and the CPC.

The cleanup work plan will document the pertinent details of the cleanup construction including items to be relocated for access, excavation areas, specific areas or landscaping that the owner or their representative requests not to be excavated or removed, landscaping that will be removed and replaced, and plants that the owner requests to be replanted.

After the inspection, the property owner will be asked to acknowledge the details of the cleanup by signing the property cleanup work plan.

### 3.1.2 Town of Clifton Permits

Excavation activities located within the Town of Clifton municipal limits will meet the requirements of the Town Code of the Town of Clifton, Arizona (Section 130.02 of the Clifton Town Code<sup>1</sup>). No city permits are required for excavation at private residential yards or private commercial properties. For excavations in a public place or public thoroughfare (if any), an excavation permit will be obtained from the Town of Clifton by the CPC before commencing cleanup activities.

### 3.1.3 Pre-Excavation Area Preparation

The CPC will notify the property owner and tenant of the intended start date at least 7 calendar days before the start of construction. Implementation may proceed at a given property with shorter notice if the property owner or tenant does not object.

Before beginning work on a property, the CC will mark the lateral excavation limits and set up construction tape or fencing to limit unauthorized access. Excavation will be performed in the accessible portions of the use areas designated for cleanup. Use areas eligible for remediation may include grass-covered and bare areas, gardens and flowerbeds (unless the owner requests otherwise), and unpaved driveways and parking areas. Examples of use areas not eligible for remediation include those covered by grouted brick or pavement surfaces (such as concrete pads, patios, paths, and driveways) where permanent structures are present (such as houses, garages, and sheds); areas covered by large landscaping items (such as retaining walls, water features); and setbacks from structures, large landscaping items, and buried utilities. Appropriate precautions will also be taken to avoid contact with overhead power lines during soil remediation by observing proper work activity setbacks, which could also result in some portions of impacted use areas not being remediated.

In addition, the CPC will survey (via photographs and/or video) each property to establish pre-cleanup conditions. The condition of buildings and other fixtures will also be documented, including the integrity of structures and foundations immediately adjacent to the target excavation areas.

Before initiation of cleanup construction, the CC will contact the local utility companies to locate the underground electrical, water, sewer, gas, cable, and telephone lines. The owner and tenant will also be asked to provide information on subsurface obstacles such as septic systems, irrigation lines, abandoned water lines, and wells. The utility companies will mark the boundary positions of the utilities on the ground following their normal convention. The CC will also locate the layout of utilities within the use areas to be excavated. In use areas requiring soil excavation, the CC will confirm locations of subsurface obstacles, including gas lines, by hand digging to trace the orientation of the obstacle and will mark them with spray paint.

The property owner or tenant will be required to relocate recreational vehicles, lawn furniture, spare lumber/building supplies, boats, vehicles, or other similar items to a location where they will not hinder cleanup. Additionally, the property owner or tenant will be required to relocate pets, poultry, and livestock to a location where they will not hinder cleanup. Assistance will be provided if the property owner is not capable of performing these activities. If off-site storage/boarding is required, FMC will arrange and pay for the storage/boarding. The CPC will also request that the property owner or tenant remove and store inside their buildings any yard ornaments, personal possessions, and keepsakes requiring special care. The items to be relocated by the property owner will be noted on the cleanup work plan as well as any concerns or special requests that the

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<sup>1</sup> The Clifton City Code concerning excavations is located at: [https://codelibrary.amlegal.com/codes/clifton/latest/clifton\\_az/0-0-0-1901](https://codelibrary.amlegal.com/codes/clifton/latest/clifton_az/0-0-0-1901)

property owner or tenant may have in removing surface obstacles or in otherwise preparing their property for cleanup.

If practicable, the CC will temporarily relocate woodpiles, walkway stepping stones, and other miscellaneous small landscape articles on the property; large obstructions such as fences and gates may be removed, if necessary, by the CC to allow for equipment and work crew access. Removed landscape articles and obstructions will be stored on the property and will be replaced by the CC following completion of cleanup.

### 3.1.4 Excavation

Excavations may be required in a front use area, back use area, separate side use area, or combination thereof. For purposes of the cleanup, a use area will be defined as extending to the edge of the adjoining street or alley, property line, or any drainage ditch/wash. Generally, a curb or, in the absence of a curb, the edge of the pavement will define the edge of the alley or street.

Side use areas that are less than 15 feet wide, but greater than 5 feet wide, may have been sampled as part of either the front use or back use area as described in the SAP (Arcadis 2021a). In this case, the side use area will be excavated only if the associated front or back use area is excavated. If a side use area is less than 5 feet wide (and therefore, not sampled) and accessible, it will be excavated if either the front or back use area requires cleanup. In this case, the entire accessible portion of the side use area will be excavated.

If a use area is larger than 3,600 square feet, it will have been subdivided into grids for the purpose of property sampling. In this case, the designated excavation area will be the grid area represented by the composite sample that exhibits soil concentrations above the ADEQ-approved CLs for one or more TCs. For areas designated for excavation by discrete sample results, the horizontal limits of excavation will be defined by discrete sample locations with concentrations less than the CLs or by significant physical obstructions such as foundations, streets, or sidewalks or property boundary limits.

The depth of excavation will be determined by sampling in multiple intervals as specified in the SAP and will generally extend to the top of the sample interval where the soil concentrations for arsenic, lead, and copper are below the cleanup levels. If only a 0- to 3-inch interval exhibits concentrations that exceed any CL, the excavation will be extended to the 0- to 6-inch interval as a practical excavation technique. FMC will attempt to remove soils with elevated TCs; however, an excavation may be terminated at a shallower depth if full removal is not practical (e.g., encountering roots of mature trees or bedrock) or the CC cannot safely excavate the soil. In such a case, the removal will extend to the deepest depth practicable (up to a maximum depth of 24 inches), and the excavation will be backfilled as described in Section 3.1.10.

The CC will remove soil using a variety of mechanized equipment and hand tools. The primary equipment used will consist of skid steer loaders (e.g., bobcats), small excavators, or other similar equipment. Soil will be removed to the specified depth, taking care to hand excavate next to buildings, sidewalks, fences, and other structures as necessary, to achieve an objective of maximizing the extent of soil removal. The potential for damage to structures and utilities will be considered on a case-by-case basis in determining the extent of the excavation. Any nominal amounts of soil left in place as a result of these considerations will not affect the primary cleanup objective achievement, which is to excavate and replace soils within a designated area of the property, to the extent necessary, to below the CLs.

The nominal setbacks that will be considered as guidance in weighing the considerations described above include:

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- Horizontal distance of 12 to 18 inches from permanent structures (e.g., house, garage, outbuildings);
- Horizontal distance of 6 to 12 inches from other improvements (e.g., sidewalks, paved areas);
- Within the drip lines of shrubs;
- Within the root lines of trees;
- Horizontal distance of 24 inches from active underground utilities when mechanized equipment is used;
- Horizontal distance of 6 inches from active underground utilities when hand tools are used;
- Limited 12-inch depth of removal within 2 feet from other permanent appurtenances or improvements (e.g., power poles, light poles);
- Horizontal distance of 6 to 12 inches around large stationary objects (e.g., sheds, animal shelters, inoperable automobiles);
- Appropriate distance from structures with basements so as not to impact basement walls (to be determined on a case-by-case basis);
- Horizontal distance of 6 inches from fences that are not removed for access;
- Horizontal distance of 6 to 12 inches from the property line.

In addition to a setback, soil excavation will be sloped at a 45-degree angle away from the edges of rock structures, retaining walls, weak concrete foundations, or other supporting structures to prevent loss of support and potential weakening of these features. Utility lines (including water, electric, sewer, gas, cable, and telephone) damaged by cleanup will be reinstalled to current building code requirements by the CC as soon as practicable after the damage occurs. Utility companies will be notified of any damage to their infrastructure. Appropriate measures will be taken to provide for the property owner's needs during repair.

Soil may not be excavated in or near areas with deteriorating or unstable retaining walls, which present potentially significant safety or property damage concerns. FMC will consider returning to remediate the areas if the property owner addresses the safety concerns (i.e., repairs or stabilizes the wall).

Excavation by hand will be performed, as necessary, to avoid damage to structures (e.g., houses, garages, sheds, paved driveways, and sidewalks) and vegetation (e.g., trees, hedges, and large shrubs). The CC will routinely inspect structures during excavation and will take reasonable and appropriate corrective action if damage occurs.

Excavation beyond the setbacks specified above for trees and shrubs will extend to the full designated depth for that area. Excavation within the setbacks of trees and shrubs will be limited to the removal of existing grass and the immediately underlying soils (3 to 6 inches) to minimize potential damage to the root structure.

If required for access, fences may be removed, salvaged, and reinstalled upon completion of the backfilling by the CC. Damaged fences or fences that cannot be reinstalled following backfilling will be repaired or replaced with fencing that is equivalent to the existing fence.

The exteriors of structures and buildings will be inspected for evidence of deformation or changes in condition attributable to the cleanup based on a review of the pre-excavation photographs/video documentation. The CPC will contact the property owner when conditions are discovered that warrant such notifications.

The CC and CPC will jointly perform the field measurements specified in the QAPP (Arcadis 2021b) to confirm that the required excavation extent and depth have been achieved. Once the CPC has verified that an excavation meets the project requirements, the area will be approved for backfilling.

### **3.1.5 Loading Excavated Materials**

Material excavated from individual properties for transport will be loaded in a manner that prevents spillage or spreading of the material. A protective temporary covering, such as polyethylene sheeting (6-mil Visqueen or equivalent) or a CPC-approved geotextile, will be used to protect clean areas situated between the hauling vehicle and the excavation area from spillage.

Spilled soil will be isolated by traffic cones as necessary and will be picked up immediately to minimize any subsequent tracking of materials or transport of materials beyond the work site or into local storm drains.

Trucks will be loaded to avoid contact with overhead electrical lines and other utilities. Dust control methods will be maintained in accordance with the Fugitive Dust Control Plan (FDCP) presented in Appendix A.

After loading, trucks will be covered with an adequately secured tarp or other device and inspected for loose/spilled material within the loading zone. Loose materials accumulated on the sides, tires, wheels, or dump gates of the trucks will be removed and placed within the truck. Spilled soils in the vicinity of the loading area will be removed (using broom and shovel or other suitable means) and placed in the truck. Then, the excavated soils will be transported to the TSSA for waste characterization and ultimate off-site disposal.

### **3.1.6 Noise Control**

Normal working hours will begin no earlier than 7:00 a.m. and will generally extend no later than 7:00 p.m. All equipment will be maintained in proper condition with exhaust controls to minimize noise levels, and proper driving habits will be enforced. Residents will be provided with the CSP office telephone number to allow reporting of any noise complaints. If noise complaints are received, the CPC will assess the issue and, if deemed necessary, require the CC to modify equipment or operational procedures to mitigate the noise. Article 130.07 of the Clifton, Arizona Code of Ordinances will apply to noise complaints submitted to the Town of Clifton.

### **3.1.7 Dust Control**

Dust control requirements and personal monitoring procedures during cleanup are described in the FDCP presented in Appendix A. Water application will be used as necessary to reduce fugitive dust. Application rates will be regulated to control dust, yet will not result in the generation of mud that could be transported from work areas on haul trucks or other mobile equipment or in the generation of runoff to adjacent properties, the adjacent roadway, or storm drains. Dust suppression equipment may consist of standard garden hoses and spray regulators, misters, or other equipment proposed by the CC and acceptable to the CPC.

### **3.1.8 Access for Property Residents**

During construction, access to the home will be provided to the residents at all times. Appropriate measures will be taken to prevent the resident from walking through exposed soil before entering their home. Sidewalks will be brushed or washed after each workday to provide as clean an entryway as possible. If there is no sidewalk, a clean pathway will be provided by laying down plywood or other means to allow safe access and prevent exposure and tracking of soils. All residents (especially children) will be requested to stay away from the construction area, which will be marked with construction tape or fencing. Handicap access and special needs will be addressed as needed. Should residents need to temporarily relocate during construction, FMC will make arrangements and pay for those relocation expenses.

### 3.1.9 Decontamination Procedures

Heavy equipment and tools used in the cleanup process will be decontaminated before leaving the work area. Decontamination will first involve a brush down of equipment in the work area to remove visible accumulations of materials from the body of the equipment and tires. Limited quantities of water may be used to remove residual visible soil following dry brushing; however, water use will be minimized. If washing is necessary, equipment will be washed while on the premises, and the wash water will be mixed with the last load of excavated soil before transportation to the disposal site. The CC will work to minimize the migration of mud and water to the street, especially during rainy days. Visible accumulations of soil, dust, or debris that are attributable to construction found on streets, rights-of-way, and access routes will be cleaned at a minimum of once per day.

### 3.1.10 Backfill and Revegetation of Excavated Areas

After field measurements by the CPC, collected in accordance with the QAPP (Arcadis 2021b), confirm that the design excavation depths have been achieved, the CPC will approve excavated areas for backfilling with soil. Backfilling will follow excavation as soon as practicable in order to minimize the amount of time during which excavated areas are left open. In general, the excavated areas will be backfilled to pre-excavation grades. Minor modifications to the pre-excavation grades will be considered, if necessary, to improve drainage provided that the property owner concurs, and such improvement can be accomplished without negatively affecting adjacent properties.

Backfill materials will be imported from off-site sources approved by the CPC and either staged in the Backfill Staging Area (BSA) before transport to a given property or directly hauled from the backfill source to the property. Samples of the proposed backfill materials will be collected and analyzed to verify that they meet the project requirements identified in the QAPP (Arcadis 2021b) before the material sources are approved. Following source approval, QA/QC samples will be collected and analyzed on an ongoing basis to confirm that the backfill materials continue to meet the project requirements. Backfill or replacement soil will be similar to the excavated soil in characteristics, texture, and structure. Details of the project QA/QC verification testing of the backfill materials and review by ADEQ are described in the QAPP (Arcadis 2021b).

Where access allows, dump trucks with backfill soil will drive near the excavation areas and deposit loads while driving slowly to spread the soil. Where access is limited, the trucks will dump loads at an adjacent temporary stockpile from which the CC can transport the material. Written access will be obtained from the owner of any adjoining private property to be used for equipment or material staging during cleanup. If the use of the adjoining property entails only access, verbal permission may be obtained.

Some handwork using wheelbarrows and shovels may be necessary to backfill areas with difficult access. The backfill soil will be graded and shaped to the approximate original conditions. Backfill material will generally be compacted by tracking of construction equipment to prevent settlement. Material placed in driveways or alleyways will be compacted using a plate compactor, roller, hand tamping, or other suitable means.

The upper surface of the backfilled area will be refinished with restoration materials that are comparable to the pre-existing conditions (i.e., sod, hydroseed-native grasses, landscape gravel, gravel parking areas or gravel driveways). If sod installation or hydroseed application is required, the vegetated area will be watered by the CC as necessary during the first 60 days after installation to facilitate establishment of the vegetation. Property owners/tenants will be provided with instructions for care of the sod and/or hydroseed after the 60-day period.

Excavated gravel driveways, parking areas, and other areas subject to vehicular traffic will be replaced with compacted clean soil and a minimum of 4 inches of clean gravel top surfacing.

Landscaping removed or destroyed as part of the cleanup will be replaced with comparable landscaping if requested by the owner. Landscaping includes, but is not limited to, trees, sod, native grasses and wildflowers, shrubs, and plantings. As an alternative, in order to reduce water usage, FMC is willing to consider installation of xeriscape landscaping in soil replacement areas if the property owner desires. Replaced landscaping will be replanted if it does not survive within 60 days, provided that the property owner follows practices recommended by the plant supplier. Plants designated by the owner as requiring replanting will be replanted; however, FMC cannot guarantee the survivability of replanted plants. The CC will also water replaced or replanted landscaping for the first 60 days.

Finally, materials such as fences moved by the CC to allow access for construction will be restored to their original locations and any incidental damage to buried sprinkler systems, sidewalks, and other infrastructure, will be repaired by the CC at that time.

### **3.1.11 Follow-Up**

Follow-up activities will be conducted by the CPC and the CC after cleanup construction is complete at a given property to verify that the work has been performed appropriately.

#### **3.1.11.1 Photo Documentation**

Photographs and/or video will be used to document post-construction conditions of properties, streets, and sidewalks. Photographs and videos will be taken by the CPC as soon as practicable after completion of landscaping.

#### **3.1.11.2 Repair Work**

Cleanup will be conducted to minimize damage to permanent features. Any damaged features, such as walkways or utilities, will be repaired or replaced upon discovery and determination that the damage was caused by the cleanup construction. Structures such as buildings, sidewalks, and fences damaged during property cleanup will be repaired. If doubt exists as to whether damage was caused by the cleanup construction process, video and photographic documentation taken before construction will be reviewed on a case-by-case basis. The decision to repair disputed damage will be made by the FMC Project Manager.

#### **3.1.11.3 Property Inspection**

Once construction is completed and any necessary repairs are made, the CPC will inspect the property with the property owner and the CC. At this inspection, the property cleanup form will be finalized, and the property owner and CPC will sign off that the work performed is consistent with the signed property cleanup work plan. If the property owner fails to attend or declines to sign the property cleanup form, the CPC will inspect the property. If the property has been cleaned up in a manner that is consistent with the pre-construction inspection, the CPC will sign the property cleanup form, and it will be included in the residential property completion report.

### 3.1.11.4 Reporting

Once cleanup is complete at a specific property, a Property Cleanup Completion Report (PCCR) will be prepared and submitted to the property owner. The PCCR will document the locations of the excavated areas and the depths of the excavations.

## 3.2 Soil Transportation

Excavated materials from cleanup properties will be transported to a Temporary Soil Staging Area (TSSA) for testing prior to transport and disposal at the Greenlee County Landfill or other approved disposal site. The proposed location of the TSSA is within a fenced area of the former Clifton School VRP site which is owned by FMC and currently used a technical training center (Figure 2).

Excavated soil will be accumulated at the TSSA into 1,000 cubic yard stockpiles. The soil in each stockpile will be sampled for waste characterization purposes and submitted for TCLP analysis for the eight RCRA metals. Stockpiled soil with results confirming TCLP levels below the RCRA toxicity characteristic limits will be transported to the landfill or other approved disposal site. If the analytical results for a stockpile indicate that the TCLP limits are exceeded, the stockpiled soil will be treated in a lined mixing cell constructed at the TSSA to reduce TCLP concentrations to acceptable levels before disposal.

Backfill materials will be hauled to the excavated properties either directly from the borrow source or the BSA.

Haul trucks will follow a direct route using major roadways and avoid neighborhood streets to the extent practicable when traveling between the disposal site and cleanup properties. The haul routes for each property will be predetermined by the CC and/or the CPC. Truck drivers will be instructed as to the preferred routes between the property, backfill source, and the disposal site before initiating hauling. Based on weight restrictions or condition of maintenance, certain roads or road structures (bridges/water crossings) may be designated as off-limits to truck traffic.

The loads of haul trucks, whether hauling excavated materials or backfill, will be covered with a secured tarp or other device. Any materials spilled during transport will be cleaned up and removed as soon as practicable.

Hauling operations will be performed pursuant to a traffic control plan (prepared by the CC) and will be conducted to minimize interference with local traffic on city streets to the extent practicable. Flag persons and signage will be employed as necessary for public safety. At a minimum, warning signs such as "Construction Area" or "Workers Ahead" will be placed on the streets where cleanup is being performed and haul trucks are being loaded. "Trucks Entering" or "Trucks Turning" signs will be used at primary and secondary street intersections as necessary. Any other signage required by local or state regulations, laws, or ordinances will also be used to provide for public safety.

Haul trucks and drivers for delivery of material to the landfill will be required to comply with applicable federal, state, and local regulations. Drivers will be licensed to operate the equipment under their control and will be subject to safety record checks.

Haul trucks will pass required safety, emission, and noise inspections. The CC will inspect each truck for leaks of fluids and fuel and will be checked for potential fire hazards associated with loading equipment and haul trucks. Weights of loaded trucks will not exceed applicable weight restrictions, and the selected transport routes will be checked for weight-restricted bridges or other load limits before initiating transport.

Truck drivers will be instructed that they must comply with posted speed limits and other traffic controls on public roads and that failure to comply will be a basis for removal from the project.

Before any materials are transported, truck drivers will be briefed by the CC regarding the loading, inspection, and documentation requirements and any additional safety procedures specified in the CC's Health and Safety Plan (HASP). Haul trucks will contain guidelines regarding emergency procedures and motor vehicle accident report forms. Completed accident report forms will be submitted to FMC's Safety Personnel and the FMC Project Manager.

### **3.3 Temporary Soil Stockpile Area**

This section contains details pertaining to the TSSA, and summarizes the various activities that will occur at the TSSA during the soil cleanup effort.

#### **3.3.1 Site Preparation**

The TSSA will be constructed before excavation crews are mobilized. The TSSA will consist of the Construction Contractor's field offices and laydown yard, as well as employee parking, temporary soil consolidation stockpile areas, and a contaminated soil mixing cell. As part of the preliminary project planning, the construction team will identify the appropriate haul route into and out of the TSSA. All trucks and equipment entering or exiting the property area will do so via the approved route.

A construction crew will be mobilized to begin initial site preparation, starting with clearing and grubbing, installation of access controls such as fencing and gates, and minor grading and road improvements, as needed.

A lined cell will be constructed for mixing purposes. The cell will consist of a 60-mil liner placed over the inner slopes of a four-foot perimeter berm. The liner will be covered with clay for protection. An orange barrier marker will be placed over the clay layer as a proximity detector for the underlying liner.

#### **3.3.2 Erosion Control**

A stormwater pollution prevention plan (SWPPP) will be prepared for the TSSA to address potential precipitation runoff from the TSSA during its use. Erosion control best management practices (BMPs) will be installed in accordance with the SWPPP. Berms will be constructed around the perimeter of the CSA to prevent runoff of impacted soils during weather events. Excavation of impacted soils at the individual properties will not begin until the necessary engineering controls are in place at the TSSA.

Erosion controls will be implemented at the TSSA to divert run-on and run-off issues from work areas. Silt fences, earthen berms, drainage ditches or swales, straw bales or straw wattles will be used, as appropriate, to achieve the necessary control measures. The Construction Contractor will monitor and maintain storm water and erosion control measures at all areas of the TSSA, in accordance with the SWPPP.

Erosion control measures at the TSSA will be maintained and inspected routinely in accordance with the SWPPP. Temporary erosion control BMPs will also be installed, if needed. Equipment fuel stored at the TSSA area will be stored in accordance with FMC policies, including double walled containments, perimeter berms, fire extinguishers, and a spill control kit placed in close proximity to the containment.

### **3.3.3 Fugitive Dust**

The provisions of the FDCP, included as Appendix A, will be implemented at the TSSA.

If windy conditions are anticipated, the soil stockpiles will be tarped to minimize the generation of dust migrating outside the TSSA boundary.

### **3.3.4 Equipment Decontamination**

When a piece of equipment is removed from the TSSA, equipment components that can potential contact impacted soil, such as tracks, wheels, or buckets, will be decontaminated. The primary method of decontamination will be to remove clinging soil using shovels, brooms, and brushes. Equipment decontamination will take place in an area of the TSSA where the soil can be picked up and placed into a container for disposal. If dry decontamination is not sufficient, contaminated parts of the equipment will be wrapped in plastic (i.e., a bucket) or high-pressure water will be used. Note: it is the goal to minimize the use of water, creating additional waste streams, or spreading contamination. Any water generated will be utilized in dust control of excavated material.

### **3.3.5 Site Restoration**

Upon the completion of all soil cleanup activities, the TSSA will be decommissioned and the TSSA site restored. All storm water and erosion controls will be removed manually or mechanically and disposed at an offsite approved facility. The access road area may be restored to pre-TSSA conditions or, alternatively, the roads may be for retained for future site use.

## 4 Construction Management Considerations

This section describes the overall construction management considerations associated with implementing the cleanup including specific sequences and inter-relationships of activities, logistical requirements of various aspects of the work, and health and safety considerations.

### 4.1 Scheduling of Cleanup Properties

Prioritizing the cleanup of properties will be based on a three-tiered approach, generally consistent with the USEPA Superfund Lead-Contaminated Residential Sites Handbook, OSWER 9285.7-50 (USEPA 2003). The application of these guidelines for the soil cleanup activities considers the CLs developed for the Study Area.

Tier I properties are residential properties with use area soil lead concentrations greater than 1,200 mg/kg and a sensitive population: either a child less than 7 years of age or a pregnant woman residing or frequently at the property (i.e., 4 or more days a week). Tier II properties are residential properties with use area soil lead concentrations between the remediation level for lead (425 mg/kg) and 1,200 mg/kg and a sensitive population or lead soil concentrations above 1,200 mg/kg and no sensitive population. Tier III properties are residential properties with lead use area soil concentrations between 425 mg/kg and 1,200 mg/kg and no sensitive population.

Relevant information on the residents will be solicited during the cleanup access agreement process. This information will be combined with the results of the sampling to assign a Tier status to each property where cleanup is required. In general, properties will be scheduled for cleanup on a neighborhood-by-neighborhood basis considering the higher priority of Tier I and Tier II properties. Non-residential properties will have lower priority than residential and recreational properties.

### 4.2 Construction Quality Assurance/Quality Control

Construction QA/QC testing and inspection procedures will be implemented to observe and document compliance with the cleanup construction plans and specifications. Details of the construction QA/QC programs are provided in the QAPP (Arcadis 2021b).

### 4.3 Health and Safety

The CC will prepare a construction HASP that is protective of workers, the public, and the environment. During construction, the CC will have a designated Health and Safety Coordinator on site. The Contractor's Health and Safety Coordinator (CHSC) will have authority over CC personnel to enforce the HASP requirements.

## 5 Reporting

This section provides a summary of reporting procedures. Submittals to ADEQ will include an electronic version.

### 5.1 Cleanup Reporting

PCCRs will be prepared for each property where cleanup was performed. The PCCRs for properties that have been cleaned up will be forwarded to the property owner.

### 5.2 Data Reporting

Monthly reports will be submitted to ADEQ within 30 days of the end of the month following commencement of the soil remediation. The monthly report will summarize base project statistics including the compiled results of weekly documentation.

#### 5.2.1 Weekly Documentation

The following documentation will be collected weekly:

- Total number of parcels in the Study Area;
- Total number of parcels sampled and will include subdivisions such as:
  - Sampled and no exceedances;
  - Sampled and contains exceedances;
  - Not sampled;
- Percentage of parcels with completed sampling;
- Total number of parcels to be sampled;
- Total number of parcels with one or more use area impacted;
- Percentage of parcels with one or more use area impacted;
- Total number of parcels with no use area impacted;
- Total number of parcels with remediation in progress or complete;
- Percentage of total estimated parcels for which remediation is in progress or complete;
- Total number of parcels declining remediation.

#### 5.2.2 Monthly Reporting

The Monthly Progress Report will describe the significant developments during the preceding period including actions performed and problems encountered, the activities anticipated over the next month, schedule of anticipated actions, and anticipated problems and planned resolution of past or anticipated problems. Figures identifying the current status (e.g., sampled, remediation pending, remediation complete) of properties within the Study Area will be included with the Monthly Progress Report.

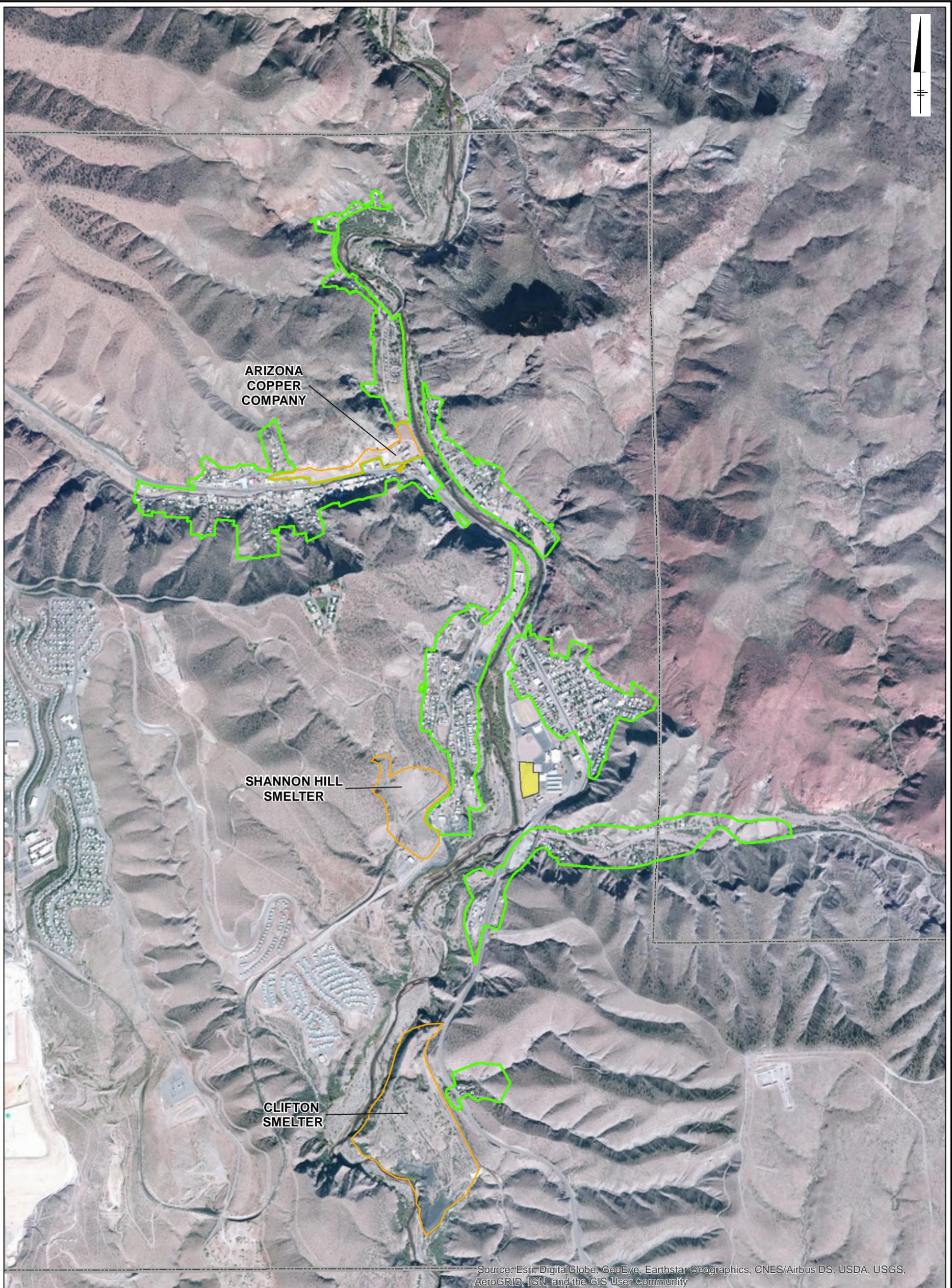
## **5.3 Final Report**

After completion of the work, a final report summarizing the actions taken (soil sampling and cleanup) will be prepared by the CPC and submitted to ADEQ.

## 6 References

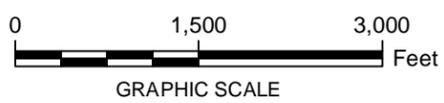
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- URSGWC. 1999. Shannon Hill Sampling and Analysis Report. URS Greiner Woodward Clyde. Denver, Colorado. September 29.
- URSGWC. 2000. Shannon Hill Verification Sampling and Analysis and Site-Specific Human Health Risk Assessment Report, Shannon Hill Site, Clifton, Arizona, URS Greiner Woodward Clyde. October 13.

# Figures



**LEGEND**

-  CLIFTON SOIL PROGRAM STUDY AREA
-  FORMER SMELTER SITES
-  TEMPORARY SOIL STOCKPILE AREA
-  CLIFTON CITY BOUNDARY

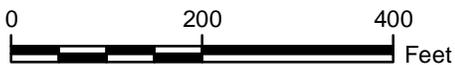


FREEMPORT MINERALS CORPORATION  
CLIFTON, ARIZONA

**CLIFTON SOIL PROGRAM STUDY AREA**



FIGURE  
**1**



GRAPHIC SCALE

FREEMPORT MINERALS CORPORATION  
CLIFTON, ARIZONA

**LOCATION OF  
TEMPORARY SOIL STOCKPILE AREA**



FIGURE  
**2**

# Appendix A

## Clifton Fugitive Dust Control Plan

Freeport Minerals Corporation

# Fugitive Dust Control Plan

**Clifton Soil Program**

**Clifton, Arizona**

**VRP Site Code: 513293-00**

November 19, 2021

# Fugitive Dust Control Plan

**Clifton Soil Program**  
**Clifton, Arizona**  
**VRP Site Code: 513293-00**

November 19, 2021

**Prepared By:**

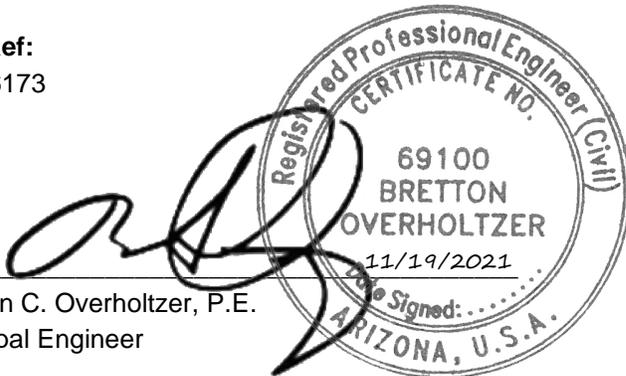
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A handwritten signature in black ink, appearing to read "John P. Shonfelt".

John P. Shonfelt  
Principal/Senior Project Manager

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## Acronyms and Abbreviations

CC	Construction Contractor
CSP	Clifton Soil Program
CPC	Construction Project Coordinator
OSHA	Occupational Safety and Health Administration
RAWP	Remedial Action Work Plan

# 1 Introduction

This document presents the Fugitive Dust Control Plan for the soil cleanup activities associated with the Clifton Soil Program (CSP) in Clifton, Arizona. This plan establishes the procedures to be implemented in order to control potential worksite contaminants from impacting public and worker safety. This plan supports and is an appendix to the CSP Remedial Action Work Plan (RAWP).

During the course of cleanup activities, the operation of earth moving equipment and vehicles in work areas may cause the generation of dust, particularly in dry and windy weather conditions. Dust control measures will be implemented as a routine measure during the work activities to protect nearby residents and workers from unacceptable levels of dust and lead particulate. Upon visual observations of dust by the Construction Project Coordinator (CPC), the CPC's designee, the Construction Contractor (CC), and the Town of Clifton, additional dust control measures will be immediately implemented.

The effectiveness of dust control measures will also be confirmed by using personal worker monitors. The monitors directly measure total dust and metals, which can be compared to appropriate 8-hour time-weighted average Occupational Safety and Health Administration (OSHA) occupational exposure limits. Dust control measures may include wetting of soil, slowing work activities, and other designated methods specified in the RAWP.

# 2 Dust Control Measures

This section outlines the dust control practices that will be followed during project activities. Controls will be implemented to minimize fugitive dust generation from excavation activities. Visual observations will be used to evaluate the effectiveness of the controls.

Dust control measures will be a high priority for project personnel. Dust control will be achieved primarily by watering down work areas and vehicle traffic routes.

The water source for dust suppression will be from the City of Clifton. Each water source will need to be sampled and analyzed for CSP target constituents per the Quality Assurance Project Plan (Arcadis 2021) prior to use. Watering at properties undergoing soil excavation and at Backfill Staging Area will be provided on an as-needed basis, as follows:

- During soil excavation activities (by heavy equipment and by hand crews)
- During stockpiling and/or loading of soils for transport
- During soil backfill activities
- Wetting down truck loads to control visible emissions during transport (truck loads will also be covered when traveling public roads).

Additional dust control measures will be implemented under windy conditions (measured wind speed greater than 10 miles per hour), whenever dust plumes are observed leaving an active soil excavation, the Backfill Staging Area, or the Temporary Soil Staging Area. Dust-generating activities will be stopped when sustained wind speeds exceed 25 miles per hour.

Dust control actions will primarily include application of water sprays to restrict dust generation in vehicle traffic routes (via water truck spray bars) and work areas (via hose/spray system fed from a portable water tank). Soil

stockpiles may be covered during non-work hours or will be moistened using the side-bar sprayer on a water truck or hose/spray system fed from a water truck. In instances where application of water spray is not sufficient to prevent generation of visible dust, other dust control measures that may be used are as follows:

- Increased frequency of water spray applications
- Regulation of vehicle speed
- Placement of additional clean gravel as a ground cover in high dust generation areas
- Application of surfactant
- Other appropriate measures.

Care will be taken to avoid application of excessive amounts of water that may cause unacceptable working conditions or increase the possibility of surface water run-off. If additional dust control measures do not eliminate visible dust or result in action levels being met, construction activities will be temporarily suspended until additional dust control measures have been implemented, or until adverse weather conditions abate. Dust control alternatives may be re-evaluated on an as-needed basis.

### 3 References

Arcadis. 2021. Quality Assurance Project Plan. Clifton Soil Program. Clifton, Arizona. Arcadis. Lenexa,

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