Triumph Community Protection Measures

1 Introduction

The Triumph Mine site is an inactive lead, zinc, and silver mine located near the unincorporated town of Triumph. Mining and milling operations took place from the late 1800s until the 1950s.

Cleanup work, beginning in 1998, was in response to contaminated soil and tailings resulting from past mining activities at the Triumph Mine site. Arsenic is the principal contaminant of concern at the site. Arsenic above certain levels has adverse health effects.

Arsenic was found above US Environmental Protection Agency (EPA) threshold levels in most residential yards and in the tailings piles and other soils surrounding the Triumph community. To address this, contaminated soil was removed from residential areas and disposed on the lower tailings pile located southwest of the Triumph community. In some cases, not all of the contaminated soil could be removed from residential areas, and the soil was covered with a barrier of clean (uncontaminated) soil or gravel. The tailings piles and waste rock pile at the mine site were also covered with a soil barrier. These barriers—also called caps--effectively protect people and the environment by preventing migration of and contact with contaminated soils.

The cleanup was performed by Asarco and the Idaho Department of Lands (IDL), the Potentially Responsible Parties (PRPs), in response to two consent orders with the Idaho Department of Environmental Quality (DEQ) under the authority of Idaho's environmental regulations. The remedy selections and cleanup work complied with federal Superfund Program requirements under EPA's oversight. For more information, visit the DEQ Triumph Mine website (www.deq.idaho.gov/triumph).

Following the initial cleanup effort, the Triumph Vicinity Overlay District (TVOD) was created to define the locations of existing barriers and areas where barriers will be required if future property development occurs (Appendix A, Map of TVOD).

1.1 Triumph Community Protection Measures

Not all of the contaminated soil was removed from residential areas, so ongoing protective measures are needed to ensure the contaminated soils located below the clean soil barrier caps do not resurface and become an unacceptable health risk. The Triumph Community Protection Measures (TCPM) described in this document provide property owners with information to maintain the environmental protection provided by the soil and gravel barriers and avoid recontamination.

The TCPMs are an essential part of the remedy. These measures are necessary to ensure that clean soil and gravel barriers do not become compromised from contaminated soils and mine wastes and that the barrier caps are protected or reinstalled in the future to continue serving as barriers to the underlying contaminated soils. Maintaining clean soil and gravel barrier caps and other remedial actions prevent migration of or contact with contaminated soils.

Future use of the land in the TVOD (Appendix A) has an important role in preserving the remedial work performed in the Triumph community. The TCPMs are designed to accommodate future land use development by outlining procedures and guidelines and educating property owners so development will not jeopardize the installed barriers or create the need for new barriers in the Triumph community.

The TCPMs will focus on educating property owners and the public about excavating and grading activities, properly disposing of contaminated soil, location of the disposal area, requirements for excavation and disposal, and installing new barriers. The limitations of activities will center around excavation issues. The property owner is responsible for complying with the TVOD restrictions.

The TCPM objectives are managing the barriers and documenting compliance. A database, created to track development activities in the TVOD and the dissemination of education materials, will be based upon two types of property in the TVOD:

1. Properties with all contamination removed do not require protective measures and have no further restrictions on the property's use and activities. These properties are not included in the TVOD area.
2. An area consisting of approximately five to ten residential properties with a barrier cap (shown in yellow on TVOD map, Appendix A) have contaminants that are safely controlled. These properties will have certain restrictions for excavating and requirements for disposing of soils.

Undeveloped properties with a barrier cap will also be subject to the TCPM (shown in green on TVOD map, Appendix A). Undeveloped and uncapped areas consisting of wetlands and hillside areas (shown in blue on TVOD map, Appendix A) are subject to the TCPM and require a barrier option plan for future development.

1.2 Program Components

The TCPM has three main components:

- Protection Measures for Barriers
- Documenting Compliance and Self-Certification
- Outreach and Education Materials

2 Protection Measures for Barriers

2.1 Small or Minor Excavation Activities

The Procedures and Standards for small or Minor Excavation Activity are provided in Appendix B, the Soil Disposal Plan is provided in Appendix C, and the soil disposal site is shown on the TVOD map (Appendix A). Examples of activities that property owners or tenants might carry out when working around their property include gardening, installing a fence, planting trees, and installing a patio deck with footers, or the installation of water, gas and other utility lines. Small or minor excavation activities would not require a building or land use permit from Blaine County.

Property owners should provide anyone working on their property, including contractors and utility companies, copies of this document and other educational materials to ensure proper excavation procedures are followed.

2.2 Large Excavation Activities

Th Procedures and Standards for Large Excavation Activities are provided in Appendix D, the Soil Disposal Plan is provided in Appendix C, and the soil disposal site is shown on the TVOD map (Appendix A). Large excavations and earth-moving projects may spread contaminated material, create dust or contaminated material that settles off-site, create run-off of contaminated material, or break barrier caps and negate the investment in protective barriers. Properly disposing of and managing large quantities of excess contaminated materials ensure that clean soil is not recontaminated and that contaminant migration is controlled.

Examples of large excavation activities include excavations for buildings, building remodels, and septic tank installations and any activity that requires a building or land use permit from Blaine County. Property owners must document and self-certify compliance with the TCPMs and by providing the plans to DEQ within 30 days of the plan's development.

Property owners should provide anyone working on their property, including contractors and utility companies, copies of this document and other educational materials to ensure proper excavation procedures are followed.

2.2.1 Contaminated Excavated Material Disposal

Excess contaminated excavation materials must go to the soil disposal site. Reuse of contaminated soil materials will be permitted with an appropriate cap to ensure there is no exposure or migration of the material off site. The Barrier Option Plan (Section 2.3.2 and Appendix E) includes proper methods for capping contaminated material. The contractor and property owner are responsible for disposing the soil in accordance with Appendix C, Soil Disposal Site Plan.

2.2.2 Clean Material Supply

For large excavations, the contractor and property owner are responsible for obtaining suitable replacement material when necessary. Soil purchased or obtained from areas impacted by the mining waste site must meet the suitable soil criteria. Follow the Soil Sampling Protocol, Appendix F, to determine if the soil meets the suitable soil criteria for clean material supply which is (a) arsenic levels of 40 parts per million (ppm) or less, (b) lead levels of 100 ppm or less, and (c) cadmium levels of 5 ppm or less.

2.3 Future Property Development

2.3.1 Subdivision, Planned Unit Development, and New Development Regulations

Subdivision regulations and construction engineering standards for physical improvements govern the process for creating individual lots for sale and development and also control the site design and how construction improvements will occur. In addition to developing plans to meet existing local zoning standards, the developer must ensure the development meets the TCPM standards and objectives for barrier protection, such as drainage plans to control runoff, soil erosion, vegetation protection, grading plans, and soil stability. Public improvements required in a subdivision, such as paving or concrete, may also act as a cap over contaminated soil. When submitting required data, a developer is required to provide the property owner with plans for protecting the existing barriers, installing new barriers where necessary, and preventing recontamination. The property owner must provide the plans to DEQ within 30 days of the plan's development. The standards apply for small or minor excavation activities, large excavations, and the barrier option plan, as applicable.

2.3.2 Barrier Option Plan

The Barrier Option Plan is provided in Appendix E. A developer, contractor, or property owner proposing a subdivision, PUD, or any other new development areas in the TVOD must provide plans prepared by a qualified professional that addresses barrier preservation or installing a new barrier.

2.3.3 Drinking Water Plan

Any developer, contractor, or property owner proposing a subdivision, PUD, or any other new development in the TVOD must provide plans prepared by a qualified professional identifying and addressing the source of drinking water. Plans for drinking water must meet all applicable federal and state drinking water standards. The property owner must provide such plans to DEQ within 30 days of the plan's development.

3 Documenting Compliance and Self Certification

3.1 TCPM Database

The TCPM database is maintained by DEQ and identifies (a) properties with all contamination removed and requiring no further protective measures and (b) properties with a protective barrier cap. This database will identify those properties subject to protective measures and will collect information provided by the property owners to document TCPM compliance (Appendix G).

3.2 Property Owner Documentation

The TCPM database will be managed by DEQ. DEQ will collect documentation submitted by property owners that shows TCPM compliance for large excavation activities (Section 2.2) and future property development (Section 2.3). The database will allow property owners to preserve documentation to meet disclosure requirements for property transfers. Send TCPM documents by mail to the following address or by email to the Staff Contact listed on the bottom of the DEQ Triumph Mine website (www.deq.idaho.gov/triumph):

Remediation Bureau Chief
Idaho Department of Environmental Quality
1410 North Hilton St.
Boise, Idaho 83703

3.2.1 Site Plan

A site plan for a residential property is comprised of an agreement between the property owner and the PRPs that ensured excavation, where required, took place in the appropriate areas and the property was returned to its original condition, to the extent practicable. The site plan included (a) an access agreement that documented the property owner's permission for the PRPs to enter the property for cleanup; (b) a map of the property that shows the property boundaries, buildings, driveways, utilities, other features; and (c) the areas where cleanup was conducted and the extent of cleanup. The map includes annotations for specific aspects of the property's cleanup, as discussed with the property owner before cleanup. An "as-built plate" is a final site plan that documents the completed remedial work of a property. The as-built plate

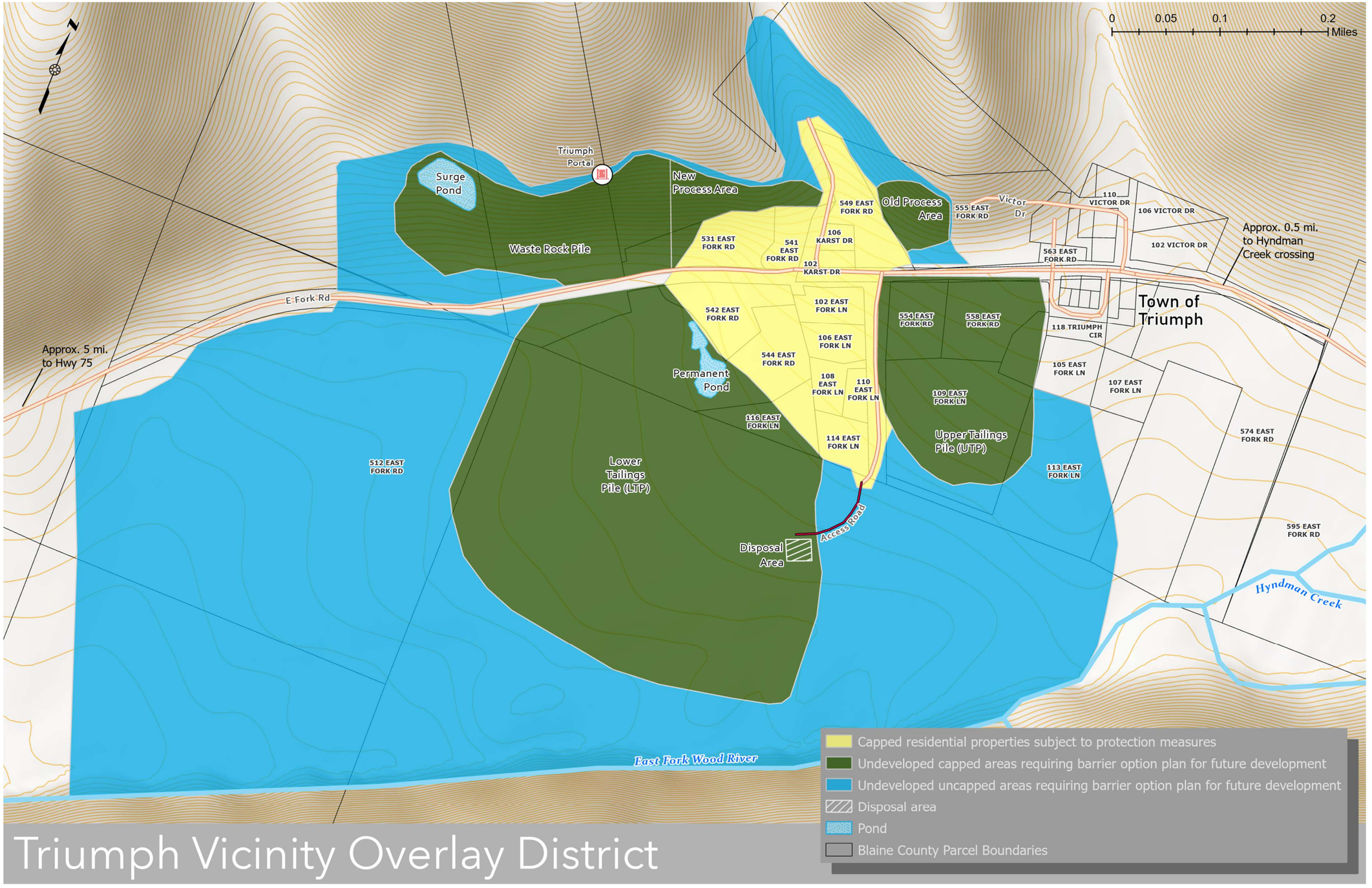
for each residential property is included in the TCPM Database, showing the final status of cleanup work completed by the PRPs.

4 Outreach and Educational Materials

To ensure the community is familiar with the requirements of the TCPM, pamphlets, brochures, and letters will be mailed out at least once a year to TVOD property owners and will also be available on the DEQ Triumph Mine website (www.deq.idaho.gov/triumph). Topics of outreach martials shall include the requirements within the TCPM and general information about cleanup, excavation, and best management practices.



Appendix A. Map of Triumph Vicinity Overlay District



Triumph Vicinity Overlay District

Appendix B. Procedures and Standards for Small or Minor Excavation Activity

The procedures and standards for small or minor excavation activities apply to sites where soils were remediated and barrier caps installed. The goal is protecting the barrier that was installed and avoiding exposure to contaminated soil or dust from minor activities that disturb the soil. During normal upkeep, residents dig up soils by gardening, landscaping, installing fences, planting trees, or completing other improvements on their property. These activities are usually conducted by the resident and do not require a building or land use permit from Blaine County. By conducting the activity in an appropriate manner, barrier protection can be preserved and excess contaminated soil is disposed of in the designated disposal site. Installing water or gas service lines are considered small or minor excavation activities.

Some of the properties in the TVOD (Appendix A) have a marker fabric installed. In other areas, no marker fabric was installed. In all cases, visually identify the contaminated soil. Contaminated soil consists of the black sand/silt material known as mine tailings. If black tailings are encountered in any digging or excavation, segregate the tailings from the clean soil and backfill with the tailings up to the cap and then clean soil above the cap. Excess contaminated soils can be relocated to the contaminated soil disposal site located on the lower tailings pile and accessed at the south end of East Fork Lane. The map in Appendix A shows the location of the disposal area and Appendix C provides the Soil Disposal Site Plan.

a. Marker Fabric: Some of TVOD properties (Appendix A) have a geofabric marker, or marker fabric, installed. This marker fabric indicates the bottom of the barrier cap. When digging through the barrier cap in a remediated yard:
    a. If the fabric marker is penetrated, clean soil from above the marker fabric must be segregated from contaminated soil below the marker fabric.
    b. If the marker fabric is not penetrated, no special precautions need to occur and nothing special needs to be done with the disturbed soil.
b. If a cap is in place and digging will occur below the marker fabric, then the soil removed must be kept on a plastic sheet or in a container to avoid spreading onto surrounding surfaces. Soil below the marker fabric must be handled as contaminated soil to avoid contaminating adjacent soil. NOTE: Contaminated soil consists of black sand/silt material known as mine tailings.
    a. If digging occurs below the marker fabric, the soil from above and below that marker must be segregated. When backfilling the excavation, place the soil from below the bottom of the cap or marker fabric in the hole up to the bottom of the cap or marker fabric and place clean fill on top. Any excess materials must be taken to the disposal site (Appendix A).

Where contaminated soils will be encountered, follow personal protection practices, such as wearing gloves, washing hands immediately after working in the soil, keeping children away from the excavated soil, and preventing dust by wetting or covering the soil.

Appendix C. Soil Disposal Site Plan

The TCPMs describe methods for handling soil and tailings potentially containing arsenic and lead. If a barrier cap is in place and digging occurs below the marker fabric (a geofabric marker indicates the bottom of the cap), then the soil removed must be kept on a plastic sheet or other container to avoid spreading onto surrounding surfaces. The soil from above and below that marker must be segregated. When digging occurs above the marker fabric, no precautions need be taken with the soil. When backfilling the excavation, place the material from below the bottom of the cap or marker fabric in the hole up to the bottom of the cap or marker fabric and place clean material on top. Any excess material must be disposed of in the designated disposal site.

The designated soil disposal site is located at the end of East Fork Lane (Appendix A). This site is situated on property owned by the State of Idaho and is administered by the Idaho Department of Lands (IDL) and Idaho DEQ.

The disposal site is accessible by the public for free and can be used for disposing of small quantities of soil and/or tailings (i.e., less than a single dump truck load). No notification to IDL and DEQ is necessary for small quantity disposal. The disposal site allows easy disposal of small quantities of soil and/or tailings by the Triumph community. Soil and tailings accumulating in the temporary disposal site are periodically removed by IDL and transported to a permanent disposal site.

The disposal site is used for soil and tailings only and cannot accept general refuse or debris.

For large activity disposals (i.e., greater than one single dump truck load), IDL or DEQ must be notified. Members of the Triumph community who anticipate generating a dump truck load or more of soil or tailings from the TVOD that may contain arsenic and lead must contact IDL at (208) 324-2561 or DEQ at (208) 373-0502 approximately 1 week before disposal to secure access to a permanent disposal location. Access will be provided to the disposal site for the duration of the activity from which the soil and/or tailings are generated if the activity is conducted in a timely manner.

Appendix D. Procedures and Standards for Large Excavation Activities

These procedures and standards apply to all parties proposing large excavations or activities requiring a building or land use permit. Large excavations and earth-moving projects may spread contaminated material, create dust or contaminated material that settles off site, create run-off of contaminated material, or break barrier caps and negate the investment in protective barriers. Excavation and soil disposal must be properly planned and conducted to minimize these problems. When a project requires disposal of large quantities of contaminated material, appropriate disposal procedures must be followed.

Local building and land use codes specify when a building or land use permit is required. In addition to applying for a building or land use permit, the property owner or permit applicant must document the following to DEQ to self-certify compliance with the TCPMs. The property owner must provide the plans to DEQ within 30 days of the plan's development.

a. Location of the site and purpose of the activity.
b. If removal of material will occur, provide the estimated amount of material to be removed to the disposal site and plans to clean up tracked or spilled materials and to cover the load.
c. Include a plan for the finished site, identify the portions of the site that will be landscaped, paved, and built over; the nature of the cap or replacement of the cap if one is necessary; and the anticipated structures and location of improvements. A building may serve as a cap.
d. If fill material is required, identify the source and the use of clean fill obtained from a source outside of the TVOP.
e. Best management practices must be used to control the migration of contaminated soils, including stormwater runoff controls, dust controls, and controls to minimize vehicle tracking.

Ensure workers use personal protection practices at the site, such as wearing coveralls, a face mask if exposed to dust, and a hat. Workers must leave the protective clothing at the site. Wash the protective clothing separately from other clothes. Wash hands before eating. Avoid hand-to-mouth actions when working. Shower after work.

Appendix E. Barrier Option Plan

The barrier option plan ensures that large projects or large excavation activities preserve and protect the barriers and allows flexibility in preventing recontamination of clean soil.

1. Procedure

a. A developer proposing a subdivision, PUD, or other new development must provide a plan that was prepared by an engineer, architect, or other qualified professional, indicating that the site plan was reviewed and the proposed improvements protect remediated areas, comply with the TCPMs, and create the proper protection or do not pose an issue for public health, safety, and the environment.
b. The property owner or developer must submit the following to DEQ within 30 days of the plan's development:
    1) Site plan showing the proposed activities and/or development and measures taken to protect the barriers or install new barriers.
    2) Plans for minimizing contaminant migration and direct contact risk by workers or others.
    3) Plans prepared by a qualified professional identifying and addressing the source of drinking water. Any plans for drinking water must meet all applicable federal and state drinking water standards.

2. Standards

The developer must use a protective barrier in areas identified in the database with soil arsenic levels exceeding 300 ppm:

a. A protective barrier can include:
    a. Clean soil at a depth of 12 inches in residential areas or a 6-inch clean soil cap in nonresidential areas.
    b. Vegetable gardens must have clean soil at a depth of 24 inches.
    c. A permanent barrier, such pavement or concrete, must have an asphalt or concrete pour at a depth of 2 inches.
b. An engineer, architect, or other qualified professional should design a barrier appropriate for the proposed use.

Appendix F. Soil Sampling Protocol

Soil sampling may be required to provide representative results for the property (or portion of the property) where development is proposed. The property may be divided into discrete areas and sampled separately, depending on the intended use of that portion of the property (i.e., a yard or playground area versus a horse pasture). Soil sampling methodology should follow the procedures in *Final Remedial Investigation Report for the Triumph Mine Tailings Piles Site* (Kennedy-Jenks 1997):

a. Select one sample location per every 500 square feet of the property, with a minimum of two sample locations per property. For example, if a property has an area of 870 square feet, two sample locations are required. Sample locations may be excavated as a small pit using a clean shovel or other digging instrument to a depth of approximately 18 inches.
b. At each sampling location, collect soil samples from four discrete sample intervals to evaluate the vertical distribution of arsenic: (1) 0 to 1 inches below ground surface (bgs), (2) 1 to 6 inches bgs, (3) 6 to 12 inches bgs, and (4) 12 to 18 inches bgs.
c. Composite (collect and mix) the discrete sample intervals from all of the sample locations by placing the soil collected for an interval (i.e., 0 to 1-inch) in a clean bucket or directly into a Ziploc bag and adding an equal amount of the soil from the same sample interval (i.e., 0 to 1-inch) from the next sample location, and so on. Use the bucket as a temporary container for compositing; place final samples in a Ziploc bag before shipping to the laboratory. The result will be a total of four composite samples (one for each depth interval) from each property/discrete property area.
d. Collect soil for the discrete sample intervals from the side wall of the pit using a clean trowel, spoon, or other sampling tool. Clean the shovels and other digging and sampling tools before reusing between the discrete sample intervals and sample locations.
e. Ship the composite samples as soon as possible to a qualified laboratory. Ensure the laboratory analyzes the samples for arsenic using Method 6010B, as defined in the US Environmental Protection Agency's *Test Methods for Evaluating Solid Wastes*, 1994, 3rd Edition, SW 846 or current version used by the analytical laboratory.

Appendix G. TCPM Database

1. Purpose

A permanent record of cleanup and subsequent activities is maintained for each property in the TVOD to track activities on each property and ensure that barriers are maintained and preserved. The database is created and managed by the Idaho DEQ.

2. Information Retained

Documentation on individual properties includes the following:

a. Legal description of the property
    1) Lot and block numbers, subdivision, or metes and bounds description
    2) Address of the building or site
    3) County parcel number
    1) Owner (as of the time information is recorded)
    2) Type of construction activity that occurred, when, and who did the work
    3) Cleanup performed at each property and documented on the As-Built Plate by the Potentially Responsible Parties
    4) Existing use
    5) Reference number and/or copy of building permit and subsequent work permits

Documentation of construction activity at large sites, such as a subdivision and PUD, includes the following:

a. Location and legal description of the site
b. Owner
c. Construction activity that occurred, when, and who did the work
d. Actions taken at the site to preserve and maintain the barrier caps

Documentation of educational material distributed includes the following:

a. Date distributed
b. Information
c. Mailing list