

International Smelting and Refining Superfund Site



Proposed Plan / Notice of Public Comment Period

The US EPA and UDEQ announce the preferred alternative for addressing the International Smelting and Refining Site, Tooele County, Utah



June 2007

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and the Utah Department of Environmental Quality (UDEQ) recommend monitoring and institutional controls as the Preferred Cleanup Alternative (Preferred Remedial Alternative) for the International Smelting and Refining Superfund Site (IS&R Site or Site), located just east of Tooele, Utah. This Proposed Plan identifies EPA's preferred alternative for addressing the Site, which was placed on the National Priorities List (NPL) July 27, 2000. The NPL is an EPA list of sites contaminated with hazardous substances that warrant further investigation and cleanup. Included in the Proposed Plan are the remedial alternatives for the Conservation Area (the former IS&R smelter property), Pine Canyon, and the former Tooele Valley Railroad (TVRR) property.

The Proposed Plan summarizes information that can be found in greater detail in the International Smelting and Refining/Carr Fork Remedial Investigation Report (RI) and the International Smelting and Refining NPL Site Feasibility Study Report (FS) contained in the Administrative Record file located at the Tooele City Library, 128 West Vine Street, Tooele, UT.

EPA encourages the public to review the IS&R Remedial Investigation/ Feasibility Study (RI/FS) reports and other documents in the administrative record to gain a more comprehensive understanding of the IS&R Site and the activities that have been completed to investigate and address contamination resulting from historic smelting-related activities in the area.

Final remedy selection will be made following a 30-day public review and comment period.

What is a Proposed Plan?

The purpose of this Proposed Plan is to:

- provide background information about site conditions, human health risks, and activities performed to date;
- identify and describe the Preferred Cleanup Alternative being recommended by EPA that will address potential future risks posed by the IS&R Site;
- describe the other remedial alternatives that were considered; and
- provide information about how the public can be involved in the remedy selection process.

Opportunities for Public Involvement

Public Comment Period: June 16 – July 16, 2007

Public Comment Meeting: Tuesday, June 26, 2007

Time: 7:00 – 8:30 p.m.

Location: Tooele County Health Department,
151 N. Main Street, Tooele, Utah

Written comments can be emailed, faxed or mailed. Comments sent by mail must be postmarked by July 16, 2007. Send comments to:

Erna Waterman, Project Manager
1595 Wynkoop, Denver, CO 80202,
email: waterman.erna@epa.gov, or
fax: 303-312-7151

SITE BACKGROUND

Copper, lead and zinc smelting and refining conducted at the IS&R Site between 1910 and 1972 impacted the smelter property and adjacent lands. Atlantic Richfield Company (formerly ARCO) owns the former smelting property and the surrounding land located approximately two miles northeast of Tooele in Tooele County, Utah.

This Proposed Plan addresses three areas:

- the former smelter property known as the Conservation Area, which is the main portion of the Site owned by Atlantic Richfield;
- portions of the former Tooele Valley Railroad (TVRR) grade, which extends from the Conservation area to the town of Tooele, Utah; and
- some of the residential yards located in Pine Canyon adjacent to the land owned by Atlantic Richfield. This residential area is locally referred to as Lincoln Township or Pine Canyon.

Conservation Area (former IS&R smelter and surrounding land owned by Atlantic Richfield)

Extensive reclamation activities were conducted on the smelter property from 1986 to 1987 under a plan approved by the State of Utah's Division of Oil, Gas and Mining. Those activities included building demolition, consolidation and isolation of waste, drainage modifications, soil capping and revegetation. Since 1994, the Utah Division of Wildlife Resources has managed the Conservation Area, or smelter property, portion of the Site for the purposes of wildlife habitat and preservation through a conservation easement. The Conservation Area will remain under the Conservation Easement in the future.

Since the 1980's, additional environmental restoration and cleanup work was conducted at the former IS&R smelter property. The restoration addressed 330 acres of tailings, 28 acres of metal-contaminated slag, 13 acres of settling ponds, 50 acres of landfills, and 125 acres of smelting waste. This work included waste consolidation, drainage improvements to prevent erosion, and revegetation. The only remaining feature that was

not addressed in the reclamation effort is the slag pile. The slag pile is inert and is an historic landmark.

Tooele Valley Railroad (TVRR) Grade

The railroad grade of the TVRR extends from Vine Street in Tooele east to where it divides into two tracks and then intersects the smelter property. Figure 1 details the three areas that EPA evaluated, which were then remediated by Atlantic Richfield pursuant to an EPA Cleanup Order. These three areas of the TVRR grade are referred to as the town section, the school section and the extension section.

Pine Canyon

Studies conducted as part of the Remedial Investigation found that some of the properties located in the Pine Canyon community, west of the Conservation Area, had been impacted by smelter related contaminants. Consequently, cleanup activities were expanded to remediate these properties while the Feasibility Study for the Site was conducted. Atlantic Richfield performed sampling and remediation pursuant to an EPA Cleanup Order.

Superfund Studies and Removal Activities

In 1996 UDEQ and EPA conducted an Expanded Site Inspection (ESI) to review the previous reclamation work conducted on the Conservation Area. Portions of the protective soil cap over the repository were poorly vegetated or eroding. Some of the contaminated soils did not have a protective cover and numerous small tailings piles were deposited along the banks of Dry Creek, a drainage south of the Site, and Pine Creek. Soil and water sample results showed that metals were present in some of the Conservation Area soil, surface water and groundwater.

The results of all the sampling at the Site are detailed in the Draft IS&R/Carr Fork RI Report, dated August 2004. Additional studies were conducted to map and characterize contamination, to evaluate the potential for migration of

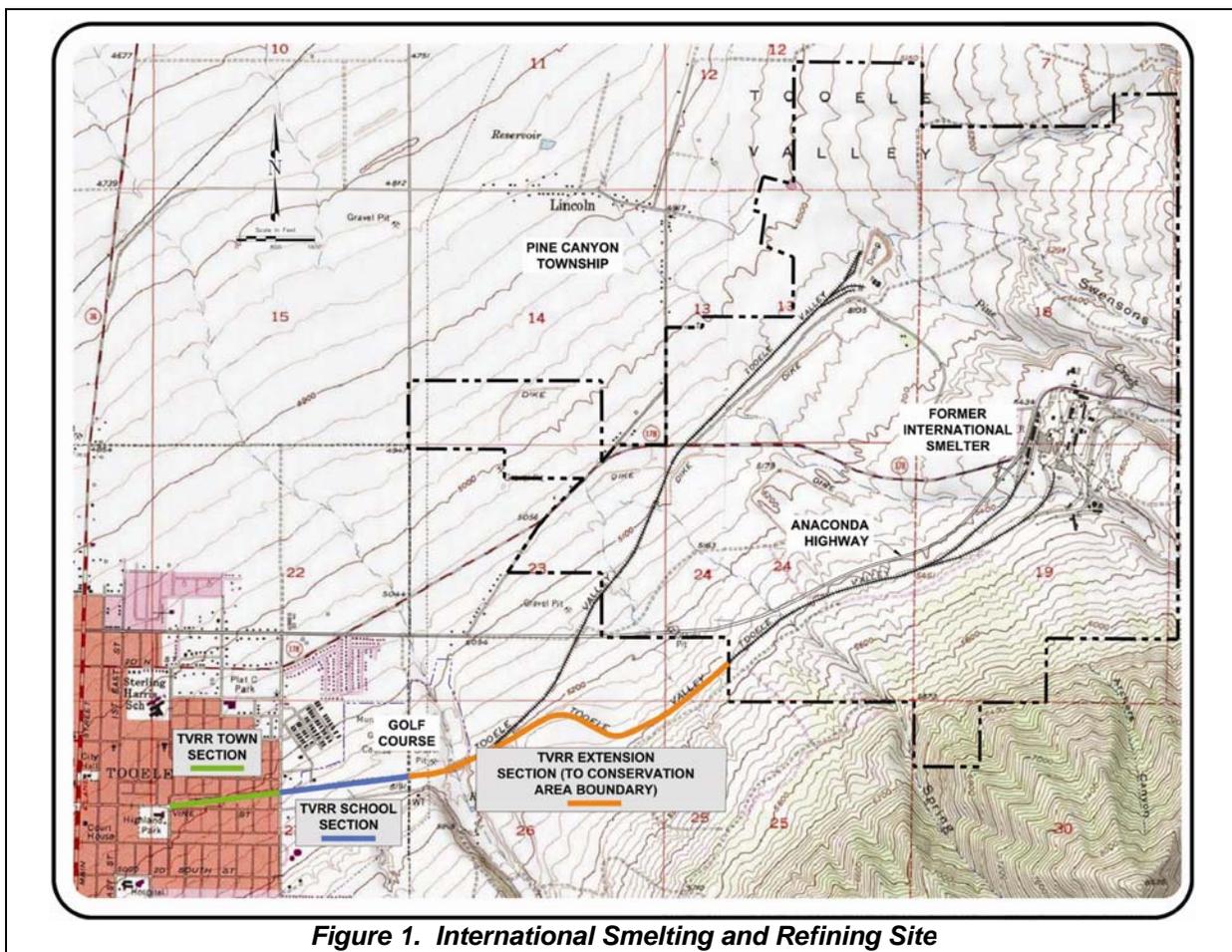


Figure 1. International Smelting and Refining Site

contaminants from the IS&R Site, and to assess the potential risk to human health and the environment. In addition to samples collected on the former smelter site and surrounding fields, residential yard samples and household dust

samples were collected in Pine Canyon and along the TVRR grade as part of these investigations. These studies revealed the need to remove the soil in some of the yards in Pine Canyon as well as along the TVRR grade.

SITE CHARACTERISTICS

The site is located on an aquifer containing sand and rock fragments known as alluvial-fan deposits that resulted from erosion of the Oquirrh Mountains. The alluvium in the area ranges in thickness from approximately 730 feet at the smelter property to 900 feet at Pine Canyon. Pine Creek is the only perennial stream that flows onto the Site. Its headwaters are a combination of small springs, located approximately one-half mile up-gradient of the Site in upper Pine Canyon, and mine discharges from tunnels known as the Adamson, Bingham West Dip, and Pine Canyon. Groundwater beneath the Conservation Area is very deep (about 550 feet below ground surface) and flows in a westerly-northwesterly direction.

The Conservation Easement for all of the Conservation Area (former smelter property) owned by Atlantic Richfield defines allowable uses on the property. In general, current use of the area is restricted to light recreational activity such as seasonal walking, wildlife observation and hunting. A small, privately-owned and operated small arms firing range is also located on part of the property.

Drinking water for the Pine Canyon residences is provided by a private, user-owned water company that obtains the water from springs and wells located in non-smelter-impacted Murray and Middle Canyons.

Lead and arsenic were found to be the primary contaminants of concern at the Site.

Concentrations in soil at the smelter property ranged as high as 58,000 milligrams per kilogram (mg/kg) lead and 27,700 mg/kg arsenic.

All surface water analytical results for Pine Creek were found to be within drinking water standards or within the range of naturally occurring background values.

Groundwater analytical results from the Remedial Investigation, for both up-gradient and down-gradient wells on the Site, were within drinking water standards except for wells with elevated arsenic located at the mouth of Pine Canyon in the vicinity of the Boys Ranch. Concentrations of arsenic ranged from 120 to 140 micrograms per liter (ug/l) in the ground water monitored by these wells (the drinking water standard maximum

contaminant level for arsenic is 10 ug/l). The area of the elevated arsenic is estimated to extend approximately 2,500 feet beyond the west boundary of the smelter property. However, the elevated arsenic portion of the ground water does not impact current drinking water supplies.

Efforts to locate a probable source of the elevated arsenic in the ground water near the Boys Ranch did not identify a significant smelter-related source. The arsenic found in the above-referenced wells is likely a result of natural sources, that is, reactions between groundwater and native material containing naturally occurring arsenic. However, monitoring will still occur to ensure no contamination is migrating from upgradient sources. For more information on the studies and conclusions to the groundwater findings, please refer to the March 2007 Groundwater Fact Sheet in the Administrative Record.

SUMMARY OF SITE RISKS

EPA and UDEQ used the data gathered during the Remedial Investigation to complete Baseline Risk Assessments for human health and for ecological risk. Utilizing methods and approaches recommended by EPA for Superfund sites, the assessment began with a screening-level evaluation to identify chemicals of potential concern. This process indicated that lead and arsenic were human health concerns at this Site, but that other metals were not. EPA established cleanup levels based on land use and on concentrations of arsenic and lead that cause an increase in excess cancer risk of 1 in 10,000; that cause acute effects based on non-cancer effects; or that cause blood-lead levels to be above acceptable levels. The different land use scenarios identified for the Remedial Investigation are “residential” (Pine Canyon), “infrequent (or recreational) visitor” or “on-site worker” (Conservation Area), and “frequent visitor” (TVRR). Each land use or exposure scenario is associated with a corresponding cleanup level (see Table 1 on Page 5).

Cancer risk is described as the probability that an individual will develop cancer from site-related exposure before the end of his or her lifetime. For cancer risk, in general, EPA considers one additional case of cancer in 1,000,000 to be so small as to be negligible, and

risks above one additional case in 10,000 to be sufficiently great to require remedial action. If excess cancer risks fall within this range, risk management decisions are made on a case-by-case basis.

Pine Canyon – Human Health Risk

A comprehensive human health risk assessment was performed to characterize risks from smelter-related contaminants present in some residential soils. This study evaluated potential exposures to contaminants in soil and indoor dust, groundwater, and in surface water and sediment. The results of this study showed that some of the yards in Pine Canyon could pose an unacceptable risk. The residents were contacted and arrangements made to remove the contaminated soil and backfill with 18 inches of clean soil. EPA’s preferred Remedial Alternative does not require institutional controls; however the Tooele County Health Department may consider requiring institutional controls for these properties. All of these properties that were identified as having unacceptable risk have been successfully cleaned up.

TVRR Grade Area – Human Health Risk

The length of the former rail line is approximately 10,000 feet, and because the land use changes along the former rail line from Tooele to the Conservation Area, the TVRR was sectioned into three study and removal areas, termed the “town,” “school” and

“extension” sections. The TVRR varies in current land usage. Some parts of the town section are residential, some are commercial (parking lots, etc.) and some are now paved streets. The school section is an open space located behind the grade school. The extension section is located along part of the golf course and is used by visitors more frequently than the Conservation Area. To be protective, a site evaluation was performed to establish cleanup levels. Where feasible and appropriate, contaminated soil along the TVRR was removed. In other places, contaminated soil was capped with a protective soil cover. Areas where the contaminated soil was capped with a protective cover will be monitored and controlled by institutional controls enforced by the Tooele County Health Department and Atlantic Richfield.

Conservation Area - Human Health Risk

The Conservation Area does not pose a health risk to on-site workers or recreational visitors. The Human Health Risk Assessment showed that excess cancer risks from non-lead (arsenic) contaminants in soil to workers, and visitors ranged up to 3 in 100,000. In the case of lead, health risks are considered acceptable if there is no more than a 5 percent chance that an exposed individual (a child or a woman of child-bearing age) will have a blood lead level that exceeds 10 micrograms per deciliter. The risk assessment showed that there is no risk to on-site workers and recreational visitors, including children, as long as access to the Conservation Area is limited. To be protective, EPA risk assessors evaluated an exposure scenario assuming human visitation would increase in this area in the future. Because preferential visitation (wildlife

viewing) may occur in some areas of the Conservation Area, cleanup levels were established for the remediation work that was conducted on this property. Because there is contamination capped in the Conservation Area, this area is fenced to reduce wear on the capped areas and to protect wildlife habitat. The State of Utah Division of Wildlife Management will maintain the fence and monitor access.

Conservation Area - Ecological Risk

The Ecological Risk Assessment was conducted to evaluate the former smelter’s impacts to plants and animals living in this area. The former smelter property includes some areas with low concentrations of metal contaminants that pose no unacceptable or significant area-wide or population-level risks to plants and animals. There were other portions of the Conservation Area where levels of metal compounds existed in soils that could adversely impact plants and animals. These areas were cleaned up or capped by Atlantic Richfield during the past three summers. In addition to surface soils, surface water was evaluated as a potential pathway of concern for plants and animals, even though surface water at the Conservation Area is very limited. Extensive testing of Pine Creek and other areas of seasonal run-off water was performed. The results of this investigation show that the concentrations of metal compounds in the surface water of Pine Creek do not pose an ecological risk. Additional information is provided in the IS&R Ecological Risk Assessment dated June 2003.

Area (Receptor)	Cleanup Level (mg/kg)	
	Lead	Arsenic
Pine Canyon (Resident)	580	100
TVRR (Frequent Visitor)	2,231	900
Conservation Area (Visitor)	8,000	900

Table 1. IS&R Cleanup Levels

REMOVAL ACTIONS

Starting in 2002 and ending in 2006, EPA ordered Atlantic Richfield to perform Removal Actions to address the risks posed by site soils based on the Remedial Investigation and other studies. Approximately 15,469 cubic yards of contaminated soil were removed up to depths of 18 inches along portions of the TVRR. The contaminated soil removed was placed in a repository located in the Conservation Area. In addition, approximately 18,872 square yards of soil were capped with a protective cover in areas

along the TVRR where soil removal was not complete. The areas that were capped are being monitored by the Tooele County Health Department. Formal institutional controls for these areas and other areas of potential concern are being developed. Tooele County may be provided financial assistance to enforce the institutional controls, as required. In addition, storm water berms and drainage areas were installed to reduce the impact from erosion on capped areas in the Conservation Area. In the Pine Canyon

community, contaminated soil was removed and replaced with clean soil and grass in the yards that were found to have elevated levels of lead and arsenic. The removal of most of the contaminated soil and the capping of some of the soil along the TVRR was performed to reduce the arsenic and lead concentrations below the cleanup levels listed in Table 1 as determined through risk calculations based on site-specific data for a frequent visitor who may take daily walks along this trail. Areas along the TVRR that were used as residential properties met the residential property cleanup levels. Figure 2 shows the areas along the TVRR corridor that were excavated or capped. These response actions were conducted in a manner such that no additional soil removal work is needed.

Pine Canyon

Currently, about 470 people reside in the Pine Canyon area. The community has grown substantially since the initial Remedial Investigation work was conducted. The Pine Canyon Removal Action included excavation of up to 18 inches of soil on 19 properties where lead and arsenic concentrations exceeded cleanup levels (see Table 1). Clean soil was placed on the excavated areas that were then sodded or reseeded. A total of 9,100 cubic yards of soil were excavated and moved to the repository area of the former smelter site. Clean soils were placed on top of the impoundment area (as a cover) to ensure that the final surface of the impoundment had concentrations of lead and arsenic below recreational cleanup levels. Figure 3 shows the

residential properties where the removal actions occurred. The work was completed in the fall of 2005.

Concentrations of arsenic and lead in undeveloped (farm and open space) areas of the Pine Canyon community (Lincoln Township) are below recreational cleanup levels and thus did not require remediation at the time of the Removal Action. However, if the land use changes for these areas, additional sampling will be required by the county to determine if soil removal is necessary to protect human health for residents who live on the property. The Tooele County Health Department may be responsible for ensuring that additional sampling is performed should land use change in this area. Tooele County may be provided grant money to support the establishment and enforcement of institutional controls in this area.

Conservation Area

Twenty-six (26) locations of varying size on the former smelter property exceeded the cleanup levels of 8,000 mg/kg lead and 900 mg/kg arsenic established for the Conservation Area. During the Removal Action on this property, these locations were addressed by placing a 12-inch deep cap of clean soil over the source material and then re-vegetating the surface with native grasses and shrubs to establish healthy vegetation (Figure 4). At two additional locations, fencing along the road and other physical barriers were constructed to limit access to the locations. The slag pile is one of these locations. In addition, soil removed from the Conservation Area, Pine Canyon and TVRR

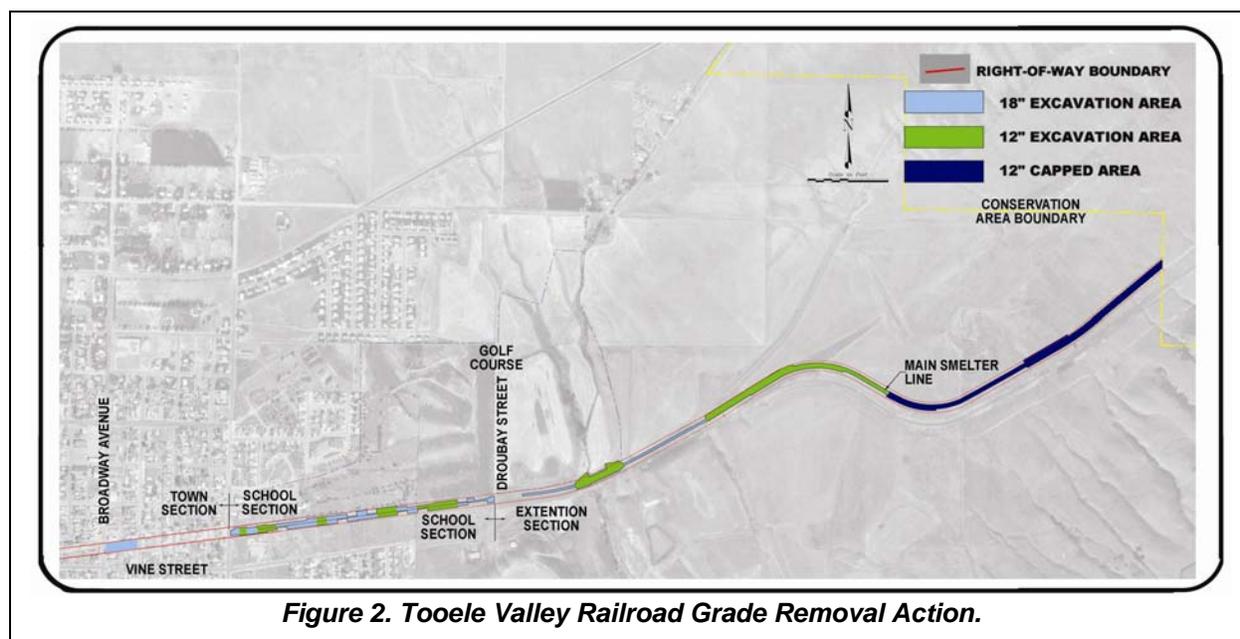


Figure 2. Tooele Valley Railroad Grade Removal Action.

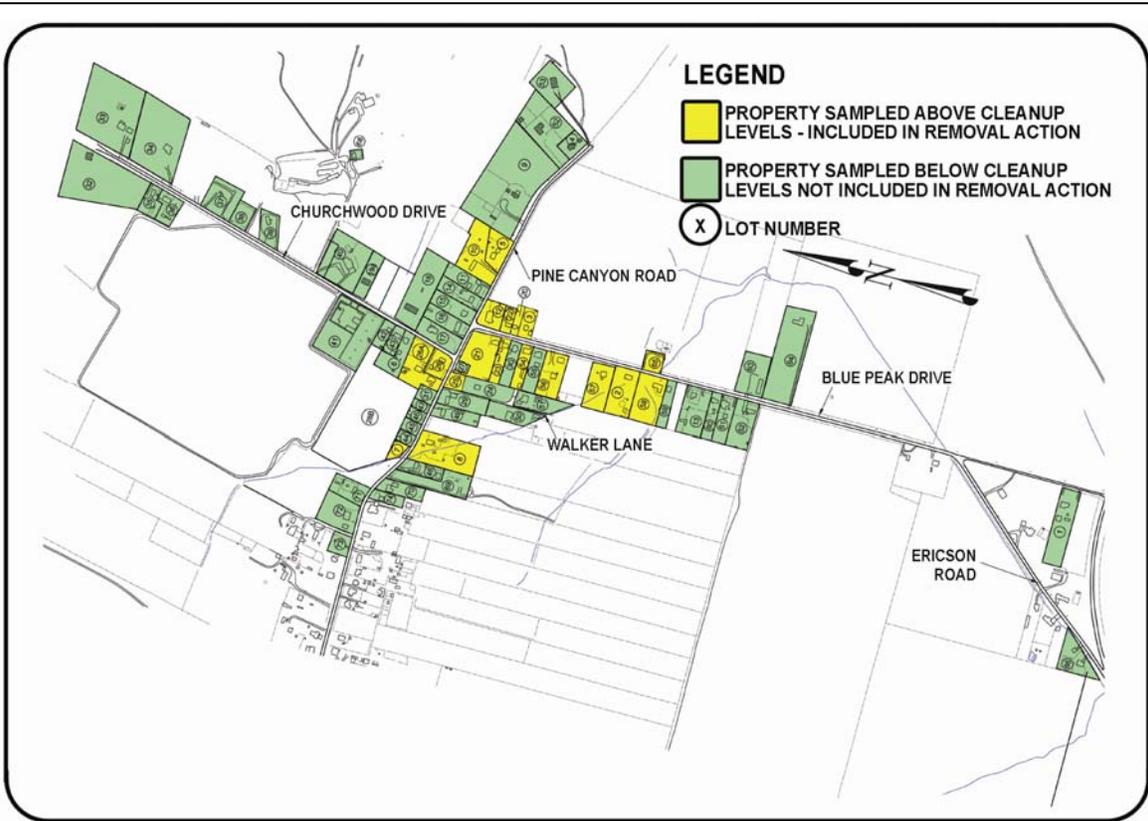


Figure 3. Pine Canyon Removal Action

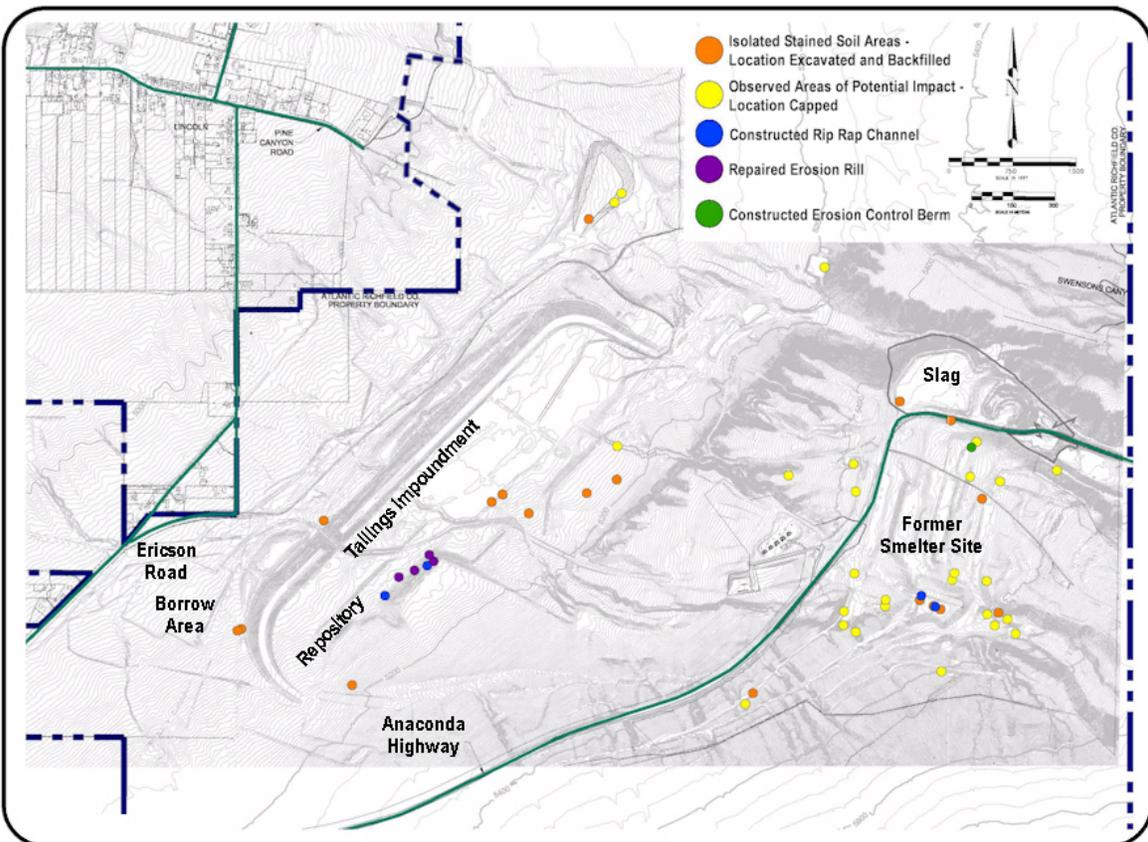


Figure 4. 2006-2007 Conservation Area, Removal Action Areas

was taken to the impoundment area of the former smelter site. Following consolidation of the soil, the repository (impoundment) area was graded and seeded with native grasses.

This Removal Action also addressed previous reclaimed areas to preserve the integrity of the existing reclamation work, including excavation and/or capping and re-vegetation of 22 areas with stained acidic soils. In addition, some storm water controls constructed as part of the initial

reclamation work in 1986 were modified and repaired during the summer of 2006. This work entailed constructing berms and ditches and introducing erosion control materials (for example, large stones known as rip-rap). Also, old foundations and vaults that had subsided since the reclamation work were backfilled and covered with clean soil and revegetated. This work was performed by Atlantic Richfield pursuant to an EPA Cleanup Order.

REMEDIAL ACTION SCOPE and OBJECTIVES

This Remedial Action addresses all areas of the Site, including the IS&R smelter property (Conservation Area), Pine Canyon, and the TVRR Grade area. As described above, interim Removal Actions have been conducted at the Conservation Area, Pine Canyon and TVRR Grade area. The response action described in this Proposed Plan is intended to be the final response action for the IS&R Site.

The Remedial Action objectives for the Site, identified to be protective of human health and the environment for the Conservation Area, the TVRR Grade area, and Pine Canyon, are as follows:

For Human Health:

1. Prevent direct contact/ingestion of soils that contain concentrations of arsenic and/or lead above the cleanup levels identified for the Site.
2. Protect water quality in streams by minimizing migration of soil with lead and arsenic

concentrations above cleanup levels into streams.

Remedial Action objectives are not necessary for surface water and sediments as these media do not pose a risk to human health and the environment. Remedial Action objectives for groundwater are not necessary because the arsenic in groundwater is likely from naturally occurring sources. Groundwater sampling will ensure no contamination is migrating from upgradient sources. The March 2007 Groundwater Fact Sheet for the IS&R Site presents a comprehensive summary of the groundwater studies conducted for the Remedial Investigation. The Groundwater Fact Sheet summarizes the groundwater investigations conducted at the Site for the past six years. This document and the Groundwater Analysis – Data Summary Report are available in the Administrative Record at the locations listed on Page 12 of this document.

DESCRIPTION OF REMEDIAL ALTERNATIVES

Currently there is no unacceptable human health and ecological risk that has not been mitigated with past reclamation and removal actions. Previously completed actions, including the 1986 reclamation work, have included capping of contaminated soils within the Conservation Area and portions of the TVRR, and soil removal in some of the Pine Canyon yards, in the Conservation Area and on portions of the TVRR. In addition, storm water management controls, such as dikes and ditches, were constructed on the Conservation Area. Fences and informational signs were placed to restrict access and advise visitors of access and activity restrictions.

Because the site risks were addressed under the prior removal actions and reclamation, only two remedial alternatives are presented in this Proposed Plan. The alternatives apply to each of the three areas of the International Smelting and Refining Site: the Conservation Area, Pine Canyon, and TVRR.

The alternatives include: **Alternative 1 - No Further Action, and Alternative 2 –Monitoring and Institutional Controls (ICs).**

Elements Common to Both Alternatives

The current Conservation Easement on the

Conservation Area (smelter property) established by Atlantic Richfield and the State of Utah, Department of Natural Resources, Division of Wildlife Resources will remain in place under both remedial alternatives. The Conservation Easement is an agreement to preserve and protect forever the wildlife, natural, scenic, open space, and educational values of the property; and to prevent any use of the property that will significantly impair or interfere with the wildlife habitat or other conservation values.

Alternative 1 – No Further Remedial Action

This alternative calls for no further remedial action to be taken to address the existing contamination or to control or further restrict future human activity at the Site. The No Further Remedial Action alternative would consider the Site in its present condition. The Conservation Easement currently in-place would remain in place; however, no additional efforts beyond those described in the Easement, which include maintenance, would be taken to control access or maintain the current integrity and effectiveness of the removal actions.

Expected costs for Alternative 1 are limited to costs associated with existing operation and maintenance obligations in the Conservation Area, which range from \$10,000 to \$25,000 per year.

Alternative 2 – Monitoring and Institutional Controls (ICs)

This alternative takes into account all remedial work completed to date, includes no further remedial construction, and includes implementation of institutional controls and monitoring as needed to protect the integrity of the previously completed removal and remedial actions.

Institutional controls are administrative or legal controls on property use that help reduce potential exposure to the contaminants (metals) at the Site. ICs such as zoning regulations, deed restrictions, easements and public education serve to limit use of reclaimed areas to acceptable activities or guide behavior to avoid exposure to health risks.

Institutional controls may be private, governmental, enforcement/permitting or informational. Private controls typically involve landowner agreements that restrict certain activities on the property. Governmental controls impose land or resource restrictions using

government authority, such as building codes, permits, and zoning regulations.

Enforcement/permit controls may be specified in administrative orders or consent decrees.

Informational controls, such as state registries and advisories provide information to interested parties. The implementability and enforceability of all such institutional controls must be ensured for the institutional controls to be effective.

Conservation Area

Activities that would impact remedial features are prohibited, such as drilling, and exploration, filling, excavating, mining, dredging, and removal of top soil and other materials, and commercial, industrial, and agricultural use as set forth in the Conservation Easement. ICs are needed to supplement the Conservation Easement and to ensure it specifically addresses and protects the existing remedial features. Examples include upgraded informational controls, such as perimeter fencing and signage, which will continue to be maintained by the Utah Division of Wildlife Resources and will help limit unauthorized use of the property.

Pine Canyon (Lincoln Township)

EPA believes Institutional Controls (ICs) are not necessary for the residential properties addressed in the Interim Removal Action. However, Tooele County or the UDEQ may consider requiring ICs that limit or restrict excavation of soils greater than 18 inches in this area. EPA will make this decision after the public meeting and public comment period.

Institutional controls consisting of governmental controls administered through the Tooele County Building and Tooele County Health Departments will apply to future developable areas where metal concentrations are below recreational cleanup levels, but above residential human health cleanup levels. For example, a suitable institutional control is an overlay zone for portions of Pine Canyon with developer guidelines identifying the procedures for certifying that soils are below residential cleanup levels prior to occupancy of new homes.

Undeveloped lands are being developed and proposed for development in the vicinity of the Lincoln Township. As these lands become developed, particularly for residential purposes, the levels of lead and arsenic may become a matter

of concern. Some of the land may require remedial action prior to being developed for residential purposes. The Tooele County Health Department will have a process for developers to follow.

When undeveloped lands are proposed for development, all of the following will be required:

- Coordination with the Lincoln Township planning and zoning staff, the Tooele County Health Department, and the UDEQ to ensure that the developers and their contractors understand and comply with the requirements of the regulations governing development in areas with elevated lead or arsenic;
- Sampling soils prior to development to determine the extent and concentrations of lead and arsenic in soils;
- If sampling indicates unacceptable levels of lead or arsenic in the soils, affected areas will be cleaned up or capped following EPA guidance prior to development;
- If soils are excavated, sampling remaining soils after cleanup to assure that the cleanup is effective and that development can proceed; and
- Manage any excavated soils appropriately. Atlantic Richfield may accept soil for burial in the on-site repository in the Conservation Area.

Either Atlantic Richfield, developers or landowners seeking to change the use of undeveloped land, such as from agricultural to residential, recreational, or commercial, will be required to meet all requirements and specifications for the new use. The Tooele County Health Department, with assistance from the UDEQ, will enforce the ICs for soil. More information regarding land development and soil disposal can be found in the IS&R Site Soils

brochure which will be available to the public though the Tooele County Health Department later this summer.

TVRR

Because contaminated soil was removed from most of the TVRR, ICs are only necessary for approximately 3,000 feet on the eastern end of the extension section of the TVRR grade and the 300-foot long trestle area. Tooele City owns the trestle area that was capped with 12 inches of soil and rip-rap. Currently existing ICs are limited to private party agreements with the landowner and Atlantic Richfield, and are required to limit future development and activities from penetrating the rock cover. This alternative will ensure the performance enforceability of such agreements.

Monitoring

For Alternative 2, monitoring will be required for all three areas of the Site. Monitoring by Atlantic Richfield will consist of checking the integrity of the caps and covers and storm water controls on a regular basis. Atlantic Richfield will conduct the monitoring and maintenance on the Conservation Area. Groundwater monitoring will be conducted at the Conservation Area to ensure that the former smelter area does not become a source of groundwater contamination in the future. In addition, EPA will monitor the institutional controls to ensure they remain in place and serve their intended purpose.

Costs

Costs expected for Alternative 2 are approximately \$25,000 to \$100,000 per year for monitoring, periodic reviews, repair and enforcement. Most costs associated with institutional controls will be incurred during the planning and initial set-up. The net present value of the ICs anticipated to be necessary is within the range of \$400,000 to \$1.5 million dollars, calculated for a period of 30 years.

EVALUATION OF ALTERNATIVES

Evaluation of Alternatives Criteria

Nine criteria are used to evaluate the different cleanup alternatives individually and against each other in order to select a remedy. There are three kinds of criteria: Threshold Criteria, Primary Balancing Criteria, and Modifying Criteria.

Threshold Criteria

- Overall Protection of Human Health and the Environment
- Compliance with Applicable or Relevant an Appropriate Requirements (ARARs)

Primary Balancing Criteria

- Long-term Effectiveness and Permanence
- Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment
- Short-term Effectiveness
- Implementability
- Cost

Modifying Criteria

- State acceptance
- Community acceptance

EPA requires an evaluation of remedial alternatives against nine specific criteria as set forth in the Superfund law. The first two criteria, overall protection of human health and the environment, and compliance with regulations (called ARARs), are considered threshold criteria. Threshold criteria must be attained by the action selected for implementation. The next five criteria, short- and long-term effectiveness, treatment, implementability and cost, are considered balancing criteria. Balancing criteria permit tradeoffs to achieve the best overall cleanup solution. The last two criteria, state and community acceptance, are considered modifying criteria. They are last, but not because they are least important. Rather, comments and concerns expressed by the State and affected communities are important. EPA can modify a preferred remedy based on state and community input.

Overall Protection of Human Health and the Environment

Alternative 1, No Further Remedial Action, is currently protective of human health and the environment, but future protection can not be assured because of the lack of Institutional Controls and lack of monitoring and maintenance of soil covers.

Alternative 2, Monitoring and Institutional Controls, provides for current and future protection of human health and the environment by restricting activities that may affect the soil covers over waste remaining in place.

Compliance with Federal and/or State Requirements - ARARs

Alternative 1 would not be in compliance with federal or state Applicable or Relevant and Appropriate Requirements (ARARs) because

closure standards would not be met if covers are eroded or compromised or ICs were not in place to prevent unacceptable human exposure to contaminants.

Alternative 2 meets federal and state regulations and requirements.

Long-Term Effectiveness and Permanence

Alternative 1 is minimally effective in protecting reclaimed features within the Conservation Area due to the activity restrictions in the Conservation Easement. Alternative 1 would be effective at meeting the cleanup objectives where waste was removed in Pine Canyon and TVRR. However, long-term effectiveness could not be assured for Alternative 1 in the areas of future development within Pine Canyon (Lincoln Township) or where waste remains in place at the TVRR.

Alternative 2 provides long-term effectiveness and permanence by restricting activities that may damage the caps, covers, and storm water controls. In addition, Alternative 2 includes monitoring of the caps, covers and controls to ensure that these remedial features remain effective.

Reduction in Toxicity, Mobility, or Volume Through Treatment

Alternatives 1 and 2 do not involve treatment that would destroy the contaminants or irreversibly reduce their mobility. Since contaminated materials have already been removed from certain areas of the Site, treatment is not a consideration in those areas.

Short-term Effectiveness

Neither of the alternatives involve short-term remedial construction; so there are no short-term effects related to construction activities.

Implementability

Alternatives 1 and 2 are both implementable as no additional construction work is required. Monitoring and Institutional Controls are implementable for Alternative 2. Atlantic Richfield is expected to be responsible for helping to establish and provide resources for institutional controls implemented by the Tooele County Health Department. Atlantic Richfield will also be responsible for ICs on property it owns (Conservation Area and some areas of the TVRR Grade). Both EPA and UDEQ monitor the

remedy as required under the Superfund law to ensure that the remedy remains protective. Groundwater sampling on the Conservation Area will be conducted by Atlantic Richfield. Groundwater sampling in Pine Canyon may be conducted by the Tooele County Health Department and supported by the UDEQ. Groundwater sampling will ensure no contamination is migrating from upgradient sources.

Costs

Expected costs for Alternative 1 (\$10,000 - \$25,000/yr.) are lower than Alternative 2 (\$25,000 - \$100,000/yr.). However, Alternative 1 may not provide future protection of human health and the environment.

State Acceptance

The UDEQ has been involved in the Remedial Investigation and Feasibility Study and agrees with the EPA on the Preferred Alternative. However, the UDEQ will provide final acceptance of or comment on, the Preferred Alternative after considering public comment.

Community Acceptance

Community acceptance of the preferred alternative will be evaluated after the 30-day public comment period ends and will be described in the Record of Decision (ROD) Responsiveness Summary for the Site. The ROD, to be issued by EPA after the public comment period, will present the final Agency decision on the cleanup (Alternative 1 vs. Alternative 2) at the Site.

SUMMARY OF PREFERRED ALTERNATIVE

Based on the information available, EPA and UDEQ believe the preferred alternative for the International Smelting and Refining Site is Alternative 2, Monitoring and Institutional Controls. Alternative 2 is preferred over Alternative 1 because Alternative 2 provides future protectiveness through the application of institutional controls and monitoring.

Because the preferred alternative does not allow for unlimited use and unrestricted exposure, the IS&R site will be subject to reviews of how well the remedy is meeting the objectives. These reviews are conducted at least every five years and are referred to as Five-Year Reviews.

EPA and UDEQ believe the preferred alternative will be protective of human health and the environment, comply with ARARs and be cost-effective.

Public Involvement

A final remedy will be selected for the IS&R Site after the public comment period has ended and all information submitted has been reviewed and considered. After that, the EPA will prepare and issue a Record of Decision and respond to all significant public comments received during the comment period.

Documents pertaining to the International Smelting and Refining Site can be found at the following

locations: Tooele City Library located at 128 West Vine Street in Tooele (435-882-2182) and EPA's Web Site: <http://www.epa.gov/region8/superfund>.

Contact Information

We want to hear from you!
For more information or if you have questions please contact one of the following:

Erna Waterman,
US EPA – Mailcode 8EPR-SR,
1595 Wynkoop Street,
Denver, CO 80202
800-227-8917 ext. 312-6762
fax 303-312-7151
or email waterman.erna@epa.gov

Jennifer Lane
Community Involvement Coordinator
US EPA, Region 8
1595 Wynkoop Street
Denver, CO 80202
800-227-8917 ext. 312-6813
or email lane.jennifer@epa.gov

David Allison
Community Involvement Coordinator
Utah Department of Environmental Quality
168 North 1950 West, Building 2
Salt Lake City, Utah 84114-4840
(801) 536-4479
or email dallison@utah.gov