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**U.S. Army
Environmental
Center**

Community Environmental Response Facilitation Act (CERFA) Report

Umatilla Depot Activity Hermiston, Oregon

Prepared for:

**U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND 21010**

Prepared by:

**THE EARTH TECHNOLOGY CORPORATION
1420 King Street, Suite 600
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**Requests for this document must be referred to:
Commander, U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland 21010**

April 1994



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND 21010-5401

April 14, 1994



Base Closure Division

Mr. Harry Craig
Remedial Project Manager
Oregon Operations Office
U.S. Environmental Protection Agency
Region X
811 SW 6th Avenue
Portland, Oregon 97204

Dear Mr. Craig:

Enclosed herewith is the United States Army Environmental Center's (USAEC's) Final Community Environmental Response Facilitation Act (CERFA) (Public Law 102-426, 19 October 1992) Report for the Umatilla Depot Activity. The Final CERFA Report incorporates comments received from you and other regulatory agencies to the Draft CERFA Report, which you had the opportunity to review for 90 days and with which you did not concur. Your comments and our responses are attached to the Final CERFA Report as an Appendix. I am requesting your concurrence with the Final CERFA Report at this time; a partial concurrence is acceptable to the Army.

In accordance with Public Law 102-426, which amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), section 120(h), this Center has identified the real property on the Umatilla Depot Activity on which no hazardous substances and no petroleum products or their derivatives were stored for one year or more, or were known to have been released or disposed. The Army defined parcels which met these criteria in two ways: **CERFA Parcels** and **CERFA Parcels with Qualifier(s)**. A full definition of these parcel types is at Section 1.2 of the enclosed Final CERFA Report.

Finally, we want to make it clear that if the environmental condition of real property was in any way ambiguous after application of the seven-step protocol mandated by CERCLA § 120(h)(4)(A)(i)-(vii), we disqualified that real property from being a **CERFA Parcel** or a **CERFA Parcel with Qualifier(s)**. However, based on future reuse interest, the Army may find it necessary to undertake environmental sampling at such locations in the future.

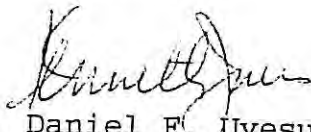
Kim.

3/12/94

Figure 5-2 (oversize)
was not included in
the "master" copy.
J. C. C.

Thank you for your timely efforts to assist the Army in complying with Public Law 102-426. In order to meet the requirements of CERFA, your concurrence is needed prior to April 19, 1994. If you have any questions, please call my point of contact at this Center, Lieutenant Colonel Paul E. Wojciechowski, at (410) 671-3261/3461.

Sincerely,


For Daniel F. Uyesugi
Colonel, U.S. Army
Commanding
U.S. Army Environmental Center

Enclosure

Copies Furnished (with enclosure):

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**Community Environmental Response
Facilitation Act (CERFA) Report**

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April 1994

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LIST OF ACRONYMS & ABBREVIATIONS

| | |
|---------------------------|---|
| ARAR | Applicable or Relevant and Appropriate Requirement |
| AREE | Areas Requiring Environmental Evaluation |
| BRAC | Base Realignment and Closure |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CERFA | Community Environmental Response Facilitation Act |
| ERIIS | Environmental Risk Information and Imaging Services |
| mg/kg | Milligrams per kilogram |
| PA | Preliminary Assessment |
| PCB | Polychlorinated Biphenyl |
| pCi/L | PicoCuries per liter |
| RFA | RCRA Facility Assessment |
| SWMU | Solid Waste Management Unit |
| TAL | Target Analyte List |
| TCL | Target Compound List |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TETC | The Earth Technology Corporation |
| TPH | Total Petroleum Hydrocarbon |
| $\mu\text{g}/\text{cm}^2$ | Micrograms per square meter |
| $\mu\text{g}/\text{g}$ | Micrograms per gram |
| $\mu\text{g}/\text{L}$ | Micrograms per liter |
| UMDA | Umatilla Depot Activity |
| USAEC | U.S. Army Environmental Center |
| USATHAMA | U.S. Army Toxic and Hazardous Material Agency |

EXECUTIVE SUMMARY

This report presents the results of the Community Environmental Response Facilitation Act (CERFA) investigation conducted by The Earth Technology Corporation (TETC) at Umatilla Depot Activity (UMDA), a U.S. Government property selected for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. Under CERFA (Public Law 102-426), Federal agencies are required to identify real property that can be immediately reused and redeveloped. Satisfying this objective requires the identification of real property where no hazardous substances or petroleum products, regulated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), were stored for one year or more, known to have been released, or disposed.

The UMDA is a 16,433-acre site located in Morrow and Umatilla Counties, Oregon, approximately 30 miles west of Pendleton. The installation's primary mission is conventional and chemical ordnance storage. Activities associated with the property that have environmental significance are munition demolition, fuel storage, landfill activities and vehicle maintenance activities. The installation is on U.S. Environmental Protection Agency (USEPA) National Priorities List.

TETC reviewed existing investigation documents; USEPA, State, and county regulatory records; environmental data bases; and title documents pertaining to UMDA during this investigation. In addition, TETC conducted interviews and inspections of UMDA as well as inspections and data base searches for the surrounding properties.

Information in this CERFA Report was current as of April 1994. This information was used to divide the installation into four categories of parcels: CERFA Parcels, CERFA Parcels with Qualifiers, CERFA Disqualified Parcels, and CERFA-Excluded Parcels, as defined by the Army.

The total BRAC property acreage at UMDA is 16,433 acres. Areas of the facility that have no history of CERCLA-regulated hazardous substance or petroleum product release, disposal, or storage are categorized as CERFA Parcels. TETC determined that approximately 11,467 acres of the 16,433-acre property fall within the CERFA Parcel category, predominantly in the storage igloo area of the installation.

Areas of the facility that had no evidence of such release, disposal, or storage, but contained hazards not regulated by CERCLA (such as asbestos, radon gas, lead-based paint, unexploded ordnance, radionuclides, or not in-use equipment containing polychlorinated biphenyl) were categorized as CERFA Parcels with Qualifiers. Approximately 2,647 acres of the facility were identified as CERFA Parcels with Qualifiers.

Areas of the facility for which there is a history of release, disposal, or storage for one year or more of CERCLA-regulated hazardous substances or petroleum products or had a release of hazards identified above were categorized as CERFA Disqualified Parcels. Two thousand three hundred and nineteen (2,319) acres of installation property are identified as CERFA Disqualified Parcels.

Areas on the facility that will be retained by the Federal Government or that have already been transferred by deed are categorized as CERFA-Excluded Parcels. None of the property was identified as CERFA-Excluded Parcels.

The primary objective of CERFA is satisfied by the identification of CERFA Parcels and CERFA Parcels with Qualifiers. As a result, concurrence has been sought from the regulatory agencies on these two categories of parcels. This CERFA Report has been reviewed by the U.S. Army Environmental Center (USAEC), UMDA, Region X USEPA, and the Oregon Department of Environmental Quality. Comments from these organizations have been incorporated into this final report. Any unresolved issues from the regulatory agencies are identified.

This report contains maps that summarize the categorization of UMDA on the basis of the above definitions. This Executive Summary should be read only in conjunction with the complete CERFA Report for this installation. The CERFA Report provides the relevant environmental history to substantiate the parcel categorization. This report does not address other property transfer requirements that may be applicable under the National Environmental Policy Act, nor does it address natural resource considerations such as the threat to plant or animal life.

1.0 INTRODUCTION

This Community Environmental Response Facilitation Act (CERFA) Report for Umatilla Depot Activity (UMDA) was prepared by The Earth Technology Corporation (TETC) under Contract No. DAAA15-91-0009, Delivery Order 0010, for the U.S. Army Environmental Center (USAEC), Base Closure Division. The purpose and scope of the work are presented in this section. The sources used to conduct the investigations for the CERFA Report are identified in Section 2. Background information for the UMDA is provided in Section 3. CERFA investigation results are discussed in Section 4. Finally, Section 5 includes maps that delineate UMDA boundaries, land transfers, and the parcels of the facility according to CERFA Parcel identification requirements.

1.1 PURPOSE AND SCOPE

Public Laws 100-526 and 101-510 designated more than 100 Army facilities for closure and realignment. As a result, it became necessary to expedite the environmental investigation and cleanup process prior to the release and reuse of Army Base Realignment and Closure (BRAC) property. The BRAC environmental restoration program was established with the first round of base closures (BRAC 88) and continued with subsequent rounds (BRAC 91, BRAC 93, etc.). UMDA is a BRAC I facility that was listed for realignment in 1988. The BRAC program is similar to the Army's Installation Restoration Program, but it has been expanded to include such categories of contamination as asbestos, radon, polychlorinated biphenyls (PCBs), and others that are not normally addressed under the Installation Restoration Program.

The first step in the BRAC environmental restoration program was the preparation of Enhanced Preliminary Assessments (PAs). The term "enhanced" is used to distinguish these assessments from previous restoration program PAs: The BRAC PAs are conducted from a property transfer perspective and evaluate substances (e.g., asbestos, radon, PCBs) that are not included in the previous PAs. The Enhanced PAs include reviews of existing installation documents, regulatory records, and aerial photographs; a site visit and visual inspection; and employee interviews. Enhanced PAs were conducted for BRAC 88 and BRAC 91 installations and are currently underway at BRAC 93 installations. An Enhanced PA was prepared for UMDA in April 1990 by Dames and Moore, under the direction of USAEC (formerly the U.S. Army Toxic and Hazardous Material Agency [USATHAMA]).

In October 1992, Public Law 102-426, CERFA, amended Section 120(h) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and established new requirements for contamination assessment and regulatory agency notification/concurrence for Federal facility closures. CERFA requires the Federal Government to identify property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed before ending activities on real property owned. The government's assessment of a facility as uncontaminated must be concurred with by the appropriate regulatory agencies (U.S. Environmental Protection Agency on National Priorities List bases and the State on non-National Priorities List bases). UMDA was placed on the National Priorities List in 1987. These

requirements retroactively affect the Army BRAC 88 and BRAC 91 environmental restoration activities and are being implemented at BRAC 93 sites concurrently with their Enhanced PAs. The primary objective of CERFA is that Federal agencies expeditiously identify real property that can be rapidly reused and redeveloped. CERFA does not mandate that the Army transfer real property so identified.

TETC was awarded the task to identify real property where no CERCLA-regulated hazardous substances or petroleum products were stored, released, or disposed at 12 BRAC 88 sites. This report presents the findings of this CERFA response for UMDA, Oregon.

1.2 DEFINITION OF TERMS

The following definitions are used to categorize and label parcels identified on the installation:

- ★ CERFA Parcel -- A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. CERFA Parcels include areas where PCB containing equipment is in operation, but there is no evidence of release. CERFA Parcels also include any portion of the installation which once contained related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, stored (not in-use) PCB-containing equipment, asbestos contained within building materials, and lead-based paint applied to building material surfaces, but which have since been fully remediated or removed.
- ★ CERFA Parcel with Qualifier(s) -- A portion of the installation real property for which investigation reveals no evidence of storage for one year or more, release, or disposal of CERCLA hazardous substances, petroleum, or petroleum derivatives and no evidence of being threatened by migration of such substances. Parcel does, however, contain related environmental, hazard, or safety issues including unexploded ordnance (UXO) located on firing ranges or impact areas, radon, radionuclides contained within products being used for their intended purposes, asbestos contained within building materials, lead-based paint applied to building material surfaces, or stored (not in-use) PCB containing equipment.
- ★ CERFA Disqualified Parcel -- A portion of the installation real property for which investigation reveals evidence of a release, disposal, or storage for more than one year of a CERCLA hazardous substance, petroleum, or petroleum derivatives; or a portion of the installation threatened by such a release or disposal. CERFA Disqualified Parcels also include any portion of the installation where PCB, asbestos containing material, lead-based paint residue, or any ordnance has been disposed of, and any locations where chemical ordnance has been stored. Additionally, CERFA Disqualified Parcels include any areas in which CERCLA hazardous substances or petroleum products have been released or disposed of and subsequently fully remediated.

- ★ CERFA-Excluded Parcel -- A portion of the installation real property retained by the Department of Defense, and therefore not explicitly investigated for CERFA. CERFA-Excluded Parcels also include any portions of the installation which have already been transferred by deed to a party outside the Federal Government, or by transfer assembly to another Federal agency.

The following labels are used in conjunction with the identified parcels:

- ★ P = CERFA Parcel
- ★ Q = CERFA Parcel with Qualifier(s)
- ★ D = CERFA Disqualified Parcel
- ★ E = CERFA-Excluded Parcel

Each parcel has been given a unique number to which the appropriate labels are attached. For example, 4P indicates that the fourth parcel is in the CERFA Parcel category.

The presence of hazards not regulated by CERCLA places a parcel in the CERFA Parcel with Qualifier category. This is indicated by the following labels:

- ★ A = Asbestos
- ★ L = Lead-based Paint
- ★ P = PCB
- ★ R = Radon
- ★ X = Unexploded Ordnance
- ★ RD = Radionuclides

For example, the designation 5Q-L indicates that the fifth parcel is in the CERFA Parcel with Qualifiers category because of the presence of lead-based paint. Similarly, parcel label 8Q-X/R indicates that the 8th parcel is in the CERFA Parcel with Qualifiers category because of the presence of unexploded ordnance and radon.

The following designations are used to indicate the type of contamination or storage present in a parcel that has been placed in the CERFA Disqualified category:

- ★ PR = Petroleum Release
- ★ PS = Petroleum Storage
- ★ HR = Hazardous Substance Release
- ★ HS = Hazardous Substance Storage

For example, 12D-HR indicates that the twelfth parcel is in the CERFA Disqualified category because of evidence of hazardous substance release.

For all parcels, "(P)" is used to indicate that the presence of a contaminant is possible, but that data are unavailable for verification. For example, 9Q-A(P) indicates that the ninth parcel is in the CERFA Parcel with Qualifiers category because of the possible presence (unverified) of asbestos-containing material. Similarly, parcel label 15D-HR/PS/A(P) indicates that the 15th

parcel is classified as a CERFA Disqualified Parcel on the basis of evidence of a hazardous substance release and petroleum storage. It may also have asbestos-containing material.

1.3 GEOGRAPHICAL AND ENVIRONMENTAL SETTING

UMDA is located in northeastern Oregon, approximately 8 miles west of Hermiston, 6 miles southwest of the town of Umatilla, and 3 miles south of the Columbia River, in the counties of Umatilla and Morrow. Figure 1-1 presents the location of the installation. The facility is divided between light industrial and ammunition storage. The surrounding land use is primarily rural and agricultural. The installation is situated in a low precipitation area. The site is generally treeless and is vegetated with desert grasses and shrubs.

1.3.1 *Physical Setting*

UMDA occupies a roughly rectangular area of 19,728 acres, of which 16,433 acres is owned by the U.S. Army; the remaining acreage is covered by restrictive easements. The Union Pacific Railroad tracks run adjacent to and just inside of the installation's southern boundary. Interstate 84 runs east-west just south of the depot, and Interstate 82 runs north-south just east of the depot.

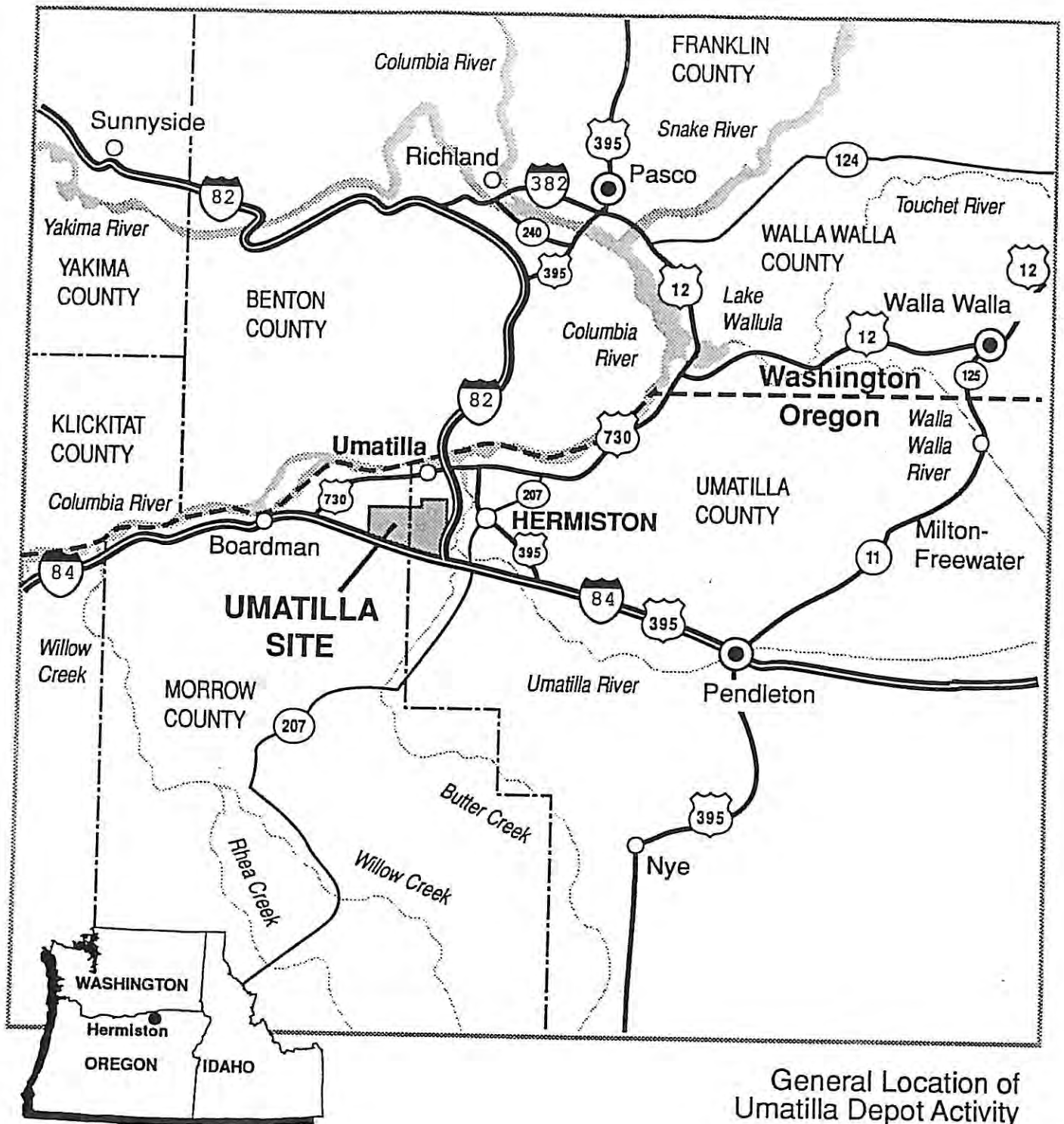
Elevations on the installation range from 400 to 677 feet above sea level. The north, west, and central portion of UMDA is generally flat to very gently rolling. A prominent surface feature, the Coyote Coulee, runs north-northeast to south across the entire installation and separates the central area from the eastern third of the installation. The Coulee drops approximately 60 feet to the northwest along its entire length. East of the Coyote Coulee, the land slopes gradually to the southwest and south.

1.3.2 *Surface Water*

There is no surface water on the installation; all waters infiltrate into the desert soils before running off onto lower surrounding lands. Because of the minimal amount of precipitation (9 inches per year) and very permeable soils covering UMDA, there is little, if any, surface runoff.

The central part of UMDA lacks any well-defined drainage pattern. The minimal runoff generated in this area generally flows into the numerous shallow depressions found in the flat and gently rolling topography in the area. The most significant of these depressions are located at the base of the west-facing bluff of the Coyote Coulee. Several of the buildings located at the top of the bluff have drainage going into these depressions.

Surface runoff in the area east of Coyote Coulee is toward the southern boundary into a shallow, elongated depression running parallel to the Union Pacific Railroad and Interstate Highway 84.



General Location of Umatilla Depot Activity

Figure 1-1



1.3.3 Geology and Soils

Basaltic lava flows of the Columbia River Group, Miocene and Pliocene in age and approximately 10,000 feet thick, underlie all of the lowlands areas and form the downwarped bedrock surface of the Dallas-Umatilla Syncline. UMDA is near the base of the south flanks of this broad syncline. The underlying basalt is composed of layers of separate basaltic lava flows, each of which is as much as 100 feet thick. Dense, hard olivine basalt at the base of each layer grades upward to softer, vesicular, and scoriaceous zones at the top. Some interlayers of clay or clay and tuffaceous sand, up to 100 feet thick, are also present in the group.

Below 751-foot elevations, which includes the entire UMDA, the basaltic bedrock is generally covered with as much as 200 feet of Pleistocene alluvial deposits. These surface deposits are generally permeable silts, sands, and gravels with some cobbles to the west of Coyote Coulee. Much coarser permeable deposits containing considerable quantities of boulders occur along the east wall of the Coulee and toward the east side of the installation.

Soils at UMDA consist of sandy loam and coarse sand developed primarily from the alluvial deposits. The soils have been modified by wind action. The upper 8 inches of soil consist of a noncalcareous, loose, fine- to medium-loamy sand. The 8- to 32-inch depths consist of fine- to medium sand, which overlies 8 inches of sand containing no organic matter. Below 40 inches, the soil consists of gravel and gravelly sand with varying amounts of cobbles.

1.3.4 Hydrogeology

Groundwater at UMDA occurs primarily in two settings: a vertical sequence of confined aquifers within the Columbia River basalt, and an unconfined aquifer within the overlying (primarily alluvium) deposits.

Aquifers within the basalt consist primarily of the rubbly, scoriaceous tops of individual flows, sedimentary interbeds, and to a lesser extent to jointing within some flows. Flow tops are a few feet to tens of feet thick, but may extend laterally for miles. In places, flows thin to nothing between overlying and underlying flows, allowing flow tops to be cut off or to make contact with flow tops in adjacent flows. In this way, basalt aquifers may occur that are laterally more extensive than any of the individual flows. Conversely, basalt aquifers may be cut off abruptly by faulting, or may be raised above water level by folding (such as the Service Anticline), thus creating a barrier to lateral flow. Faulting may also create vertical conduits connecting basalt aquifers at different depths. Groundwater levels in the basalt aquifers have declined considerably because of irrigation pumping off UMDA property.

The uppermost aquifer in the Deschutes-Umatilla Plateau near UMDA consists of unconfined groundwater occurring within the alluvium. The unconfined aquifer is bounded below by the basalt surface. The upper part of the basalt may be fractured and weathered, and thus may be capable of transmitting groundwater. The saturated thickness of the unconfined aquifer varies according to the elevation of the basalt surface and the availability of water. Saturated thickness in the area near UMDA ranges from 25 to 100 feet. In some areas, basalt occurs above the elevation of the water table in the alluvium, forming a barrier to groundwater flow in the

alluvium. Groundwater levels in the alluvial aquifer have been strongly influenced by irrigation pumping and other artificial causes.

The water supply for UMDA is obtained from seven on-site deep wells installed into the basalt aquifers. The administration area is supplied by Wells 1 and 2 (328 feet and 361 feet deep, respectively). Well 3 (453 feet deep) supplies the Block I building. Wells 4 and 5 (both 600 feet deep) serve the west area. The north area is supplied from Wells 6 and 7 (709 and 679 feet deep, respectively). Analytical data show that the water is of excellent quality in all of the wells.

From 1990 to 1993, 62 groundwater monitoring wells were installed throughout the facility as part of the Remedial Investigation. Data obtained from these wells suggest that the natural direction of groundwater flow at UMDA is northward, toward the Columbia River. However, irrigation pumping of the shallow alluvial aquifer causes groundwater in the south and central part of UMDA to flow to the south during the summer and fall.

2.0 SCOPE OF INVESTIGATION

The scope of this CERFA investigation followed the protocol established in Public Law 102-426 supplemented by Department of Defense Policy on the Implementation of CERFA dated May 19, 1993. This section describes the sources that were used during the CERFA investigation conducted for UMDA. Relevant information available from previous environmental studies are presented. Findings from Federal, State, and local government regulatory records, installation documents, aerial photographs, and personnel interviews are addressed. The visual inspection methods used during the site survey are identified.

2.1 EXISTING DOCUMENTS

Existing investigation documents and aerial photographs were reviewed to evaluate pertinent information that could be used as part of this CERFA Report. These documents are summarized below and listed in Appendix A, "Reference List for UMDA." Primary source documents containing CERFA criteria information include the Enhanced PA and the Remedial Investigation/Supplementary Remedial Investigation, which are summarized in Table 2-1.

2.1.1 Initial Installation Assessment (December 1978)

In accordance with the recommendation of the Commander, U.S. Army Depot Systems Command, UMDA was included in the Army's Installation Restoration Program in October 1978. The first component of the program was an Initial Installation Assessment performed by USATHAMA in December 1978.

The primary purpose of the Initial Installation Assessment was to evaluate environmental quality at UMDA with regard to the past use, storage, treatment, and disposal of toxic and hazardous materials. Sources of information for the Initial Installation Assessment included UMDA records, interviews with former and present employees, and contacts with other Federal agencies. The Environmental Photographic Interpretation Center provided imagery analysis support for the Installation Restoration Program at UMDA. This subtask called for a detailed historical analysis to identify possible areas of past use, storage, treatment, and disposal of potentially hazardous materials.

The Initial Installation Assessment concluded that certain portions of UMDA were contaminated with explosives as a result of past demilitarization and disposal operations. The main contaminated areas identified were the ammunition washout facility and the burning, demolition, and burial sites within the Ammunition Demolition Activity area. According to the report, the main contaminants of concern in soils included explosives wastes (2,4,6-trinitrotoluene, Composition B, Tritonal, and Amatol), heavy metals (lead), rocket fuels (red fuming nitric acid and unsymmetrical dimethyl hydrazine), and insecticides. It was concluded that these contaminants have the potential to leach into the groundwater and subsequently migrate beyond the installation boundaries. A preliminary survey involving sampling was recommended by the Initial Installation Assessment study.

TABLE 2-1
SUMMARY OF ENHANCED PRELIMINARY ASSESSMENT
AND REMEDIAL INVESTIGATION/SUPPLEMENTARY REMEDIAL INVESTIGATION,
UMATILLA DEPOT ACTIVITY, OREGON

| CERFA Label | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation/Supplementary Remedial Investigation |
|----------------------------|--|---|
| Asbestos | Preliminary asbestos abatement survey produced a limited inventory of asbestos in buildings. Survey reported the presence of asbestos in building materials and heating systems in many buildings. | Not addressed. See Asbestos Abatement Survey, August 1992. |
| Lead-based paint | Former employees reported that the use of lead-based paint on interiors and exteriors of buildings ceased in the late 1950s; therefore, lead-based paint would not likely be found on any building constructed after 1959. | Not addressed. |
| Polychlorinated biphenyls | <p>Umatilla records indicated that a total of 77 transformers containing PCBs were present at the facility. Of the 77 transformers, 25 were leaking and stored in lined secondary containment, and another 35 were leaking and still in service awaiting replacement. The remaining 17 were in service and were also awaiting replacement.</p> <p>Umatilla retirees reported that 50 to 60 PCB-containing transformers had been stored on open pallets in the center of the Road Oil Application/Disposal Sites.</p> | Seventy-nine transformers were sampled and found to contain PCBs, and 14 of them are still in use. The rest were removed and disposed offsite. A total of 63 soil samples were taken at locations of suspected leakage. |
| Radon | The Enhanced Preliminary Assessment states that there is a potential that naturally occurring radon may be present at Umatilla, and that the facility is in the process of submitting plans for a radon survey. | Not addressed. See Radon Screening Survey, August 27, 1993. |
| Unexploded ordnance | Umatilla personnel report that there is a possibility that unexploded ordnance may be present in the Quality Assurance Function range and the Ammunition Demolition Activity grounds. | Not addressed, although unexploded ordnance detected and removed from areas where Remedial Investigation sampling for chemical contaminants occurred. |
| Radionuclides | The Enhanced Preliminary Assessment states that 28 chemical agent automatic alarms are present at one of the Block K buildings. | Not addressed. |
| Petroleum release/disposal | Waste oil and gasoline were reported to have been dumped into pits and ignited during firefighter training exercises at Site 71. Waste oil was reported to have been discharged into a storm drain at Building 11, and diesel fuel was reported to have been spilled near Building 23 during fuel transfer operations. Underground storage tank 5 and the piping associated with underground storage tank 42 and underground storage tank 43 are suspected of leaking. | Soil samples taken in vicinity of underground storage tanks. |
| Petroleum storage | Waste oils are disposed of in an underground storage tank south of Building 5. Records indicate that 10 underground storage tanks were formerly or are presently located near the base gasoline station, Site 42. It is reported that there are numerous other tanks, both underground storage tanks and aboveground storage tanks, throughout Umatilla. Former employees reported that until 1979, drummed greases and oils were stored in the Jeep Storage Area, Site 40. | Not addressed. See underground storage tank Investigation Report, February 19, 1993. |

TABLE 2-1
SUMMARY OF ENHANCED PRELIMINARY ASSESSMENT
AND REMEDIAL INVESTIGATION/SUPPLEMENTARY REMEDIAL INVESTIGATION,
UMATILLA DEPOT ACTIVITY, OREGON

Continued

| CERFA Label | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation/Supplementary Remedial Investigation |
|--------------------------------------|--|--|
| Hazardous substance release/disposal | <p>Former employees report that a GB/VX bomb leaked isopropyl methyl phosphonate/ethyl methyl phosphonate at rail spur located in south-central portion of Umatilla, Site 64. An unidentified spill occurred at the Drill and Transfer Site (Site 41) in 1984. Former employees report that small amounts of Agent H leaked at the Y sites in the early 1960s. A former employee reports that Agent Orange was leaked from Building 203 in the early 1970s. Former employees report that several hundred gallons of wood preservative (probably PCP) were dumped or spilled onto the soils in the 1960s and 1970s at Site 70. Malathion contamination occurred during a commercial spraying overflight northeast of igloo Block C (Site 79). Former employees report that leaking containers of malathion were stored on the gravel north of Building 108 (Site 35). Leaking PCB transformers have been stored at Building 77 and at the Defense Reutilization and Marketing Office area. Former employees report that road oil was drained onto the ground to suppress dust at Site 44, along with spent motor oil. Former employees said cyanide-containing liquid was spilled at Skunk Works Area (Site 69) and Building 493 (Site 67).</p> | <p>The following investigation/sampling activities were completed regarding hazardous releases and disposal: 165 soil samples, 103 groundwater samples, 10 wipe samples, and 2 sump sludge samples were taken at Operable Unit A, the Explosives Washout Lagoons and Associated Buildings. Samples were analyzed for explosives, volatile organic analytes, Base-Neutral and Acids, inorganics, and pesticides/PCBs. At Operable Unit B, the Ammunition Demolition Activity Area Sites, 370 soil samples and 74 groundwater samples were taken and analyzed for explosives, aniline, metals, inorganics, volatile organic analytes, Base-Neutral and Acids, cyanide, pesticides/PCBs, isopropyl methyl phosphonate, and ethyl methyl phosphonate. At Operable Unit C, the Inactive Landfills, 37 soil samples, 30 groundwatersamples, and 1 surface debris sample were taken. Samples were analyzed for explosives, inorganics, volatile organic analytes, Base-Neutral and Acids, pesticides/PCBs, asbestos, and oil/grease. At Operable Unit D, the Remote Munitions Disassembly Area, 6 soil samples were taken and analyzed for explosives, metals, isopropyl methyl phosphonate, and ethyl methyl phosphonate. At Operable Unit E, Deactivation Furnace and Southwestern Warehouse Area, 61 soil samples, 2 groundwater samples, and 1 sump sludge sample were taken. Samples were analyzed for explosives, metals, volatile organic analytes, Base-Neutral and Acids, oil/grease, pesticides, malathion, PCBs, aniline, and chloride. At Operable Unit F, the Sewage Treatment Plant and Vicinity, 37 soil samples were taken and analyzed for explosives, metals, volatile organic analytes, Base-Neutral and Acids, TPHs, inorganics, PCBs, oil/grease, pesticides, thiodiglycol, isopropyl methyl phosphonate, and ethyl methyl phosphonate. At Operable Unit G, the Active Landfill, 20 groundwater samples were analyzed for explosives, inorganics, volatile organic analytes, and Base-Neutral and Acids. At Operable Unit H, the Defense Reutilization and Marketing Office and Other Administration Area Sites, 53 soil samples and 6 groundwater samples were taken. Samples were analyzed for explosives, metals, inorganics, volatile organic analytes, Base-Neutral and Acids, pesticides/PCBs, PCP, TPHs, dioxin, and sulfate. At Operable Unit I, the Chemical Agent/Agent Decon Solution Sites, 20 soil samples were analyzed for explosives, inorganics, volatile organic analytes, Base-Neutral and Acids, thiodiglycol, isopropyl methyl phosphonate, and ethyl methyl phosphonate. At Operable Unit J, Miscellaneous Sites, 96 soil samples, 3 sludge samples, and 5 septic tank samples were taken. Samples were analyzed for explosives, metals, inorganics, Base-Neutral and Acids, volatile organic analytes, isopropyl methyl phosphonate, ethyl methyl phosphonate, thiodiglycol, pesticides, malathion and sulfide. At Operable Unit K, 63 soil samples were taken and analyzed for PCBs.</p> |

TABLE 2-1
SUMMARY OF ENHANCED PRELIMINARY ASSESSMENT
AND REMEDIAL INVESTIGATION/SUPPLEMENTARY REMEDIAL INVESTIGATION,
UMATILLA DEPOT ACTIVITY, OREGON

Continued

| CERFA Label | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation/Supplementary Remedial Investigation |
|---|--|--|
| Hazardous substance storage/disposal | Hazardous materials are stored in Building 203 and in Block J and Block K igloos. | Sampling was done near Building 203. |

Key: CERFA = Community Environmental Response Facilitation Act
 PCB = Polychlorinated Biphenyl
 TPH = Total Petroleum Hydrocarbon
 DAT = Drill and Transfer Site

2.1.2 Contamination Survey and Assessment (April 1982)

This environmental survey was recommended in the Initial Installation Assessment and was conducted in two phases: exploratory and confirmatory. Review of the information collected led to the conclusion that the explosive washout lagoons were the source of the detected groundwater contamination by explosives. The report did conclude that the contamination plume was moving slowly and would likely be diluted before reaching the installation perimeter in an estimated 100 years. In addition to groundwater contamination, soil contamination by metals, explosives, and nitrates was found at several locations.

2.1.3 Resource Conservation and Recovery Act Facility Assessment (June 1987)

The RCRA Facility Assessment (RFA) was conducted in fall of 1986. The RFA identified solid waste management units (SWMUs) characteristics, releases, and locations and rationale for on-site sampling. The report identified 30 SWMUs.

2.1.4 Enhanced Preliminary Assessment Report, Umatilla Depot Activity (April 1990)

In April 1990, USATHAMA conducted an Enhanced PA to assess the environmental quality of UMDA. The assessment identified 82 individual and multiple location sites that were to be considered for potential inclusion in the Remedial Investigation/Feasibility Study. These sites were identified while researching available documentation, interviewing former and current employees, and viewing historical aerial photographs. Sites identified through this process (including land areas, buildings, and underground storage tanks) were inspected during the site visit. Seventy-two of the identified sites were recommended for further investigation based on evaluations of known and/or suspected releases, potential contaminants of concern, and potential migration pathways.

The routine use of pesticides was not considered a release when locating sites in the Enhanced PA. Several sites were identified in the Enhanced PA on the basis of the occurrence of non-routine releases, leaks, spills, and storage and mixing facilities.

The remaining sites were not recommended for additional investigation because previous sampling efforts were considered adequate to characterize site contaminants; site information suggested that little or no contamination was likely to be found; or site information was too limited to warrant further investigation. A series of additional sites (labelled "AX") identified through historic aerial photographs as potential disposal sites were also discounted because no waste disposal activities are known or suspected at those locations. Exceptions were Sites AX-2, AX-10, AX-20, AX-26, AX-36, and AX-35, which were identified as disposal sites and which became part of Remedial Investigation Sites 59, 80, 68, 81 (location I), 81 (location II), and 82, respectively.

Potential contamination was evaluated for former and existing buildings at UMDA. Based on past or present waste disposal activities reported at or near these buildings, potential sources of contamination were identified at 41 existing and 8 former buildings. Of these, further investigation was recommended for 26 existing and 6 former buildings.

A preliminary evaluation of underground and aboveground storage tanks at UMDA was conducted. Fourteen underground storage tanks were known or suspected to have been removed; 2 of these locations were designated Site Numbers 42 and 43 and were evaluated for potential residual contamination and were recommended for further investigation. In addition, one aboveground storage tank (Site 27) used to store waste pesticide solutions was recommended for further investigation. The remaining active/inactive underground storage tank locations were not recommended for investigation under the Remedial Investigation/Feasibility Study because of an agreement between USATHAMA and USEPA to conduct a separate study of underground storage tanks.

An initial inventory of transformers containing concentrations of PCBs greater than 10 parts per million was also completed during the Enhanced PA. Seventy-seven transformers were identified that fall into this category; of these, 60 were determined to be leaking or to have leaked in the past. Twenty-five of these units were found to have been taken off-line and were in storage in the Building 203 Hazardous Waste Storage Facility at the time of the Enhanced PA investigation. One location where a leaking transformer was stored on the ground was recommended for investigation as a land-based site (Defense Reutilization and Marketing Office Area, Site 22). At other locations where transformers have been identified to be leaking, investigation was recommended under a separate PCB transformer study.

2.1.5 Risk Assessment for Site 4--Explosive Washout Lagoons (March 1992)

A Risk Assessment for the explosive washout lagoons (Site 4) was prepared in March 1992 for USATHAMA. The purpose of the Risk Assessment was to address the potential future health risks posed by explosives-contaminated soil and groundwater associated with Site 4 in the absence of remediation, and to identify safe residual explosive concentrations (remedial action criteria) in soil if remediation is determined to be a requirement. The explosive washout lagoons were placed on the National Priorities List on July 22, 1987. The Risk Assessment was not intended to address the remediation of contaminated groundwater; contaminated groundwater was addressed only to the extent that contaminants in Site 4 soil were affecting groundwater quality. The potential remediation of contaminated groundwater was addressed in the installation-wide Baseline Risk Assessment for UMDA.

Risk calculations were conducted for three future land use scenarios (residential, light industrial, and military). Four exposure pathways were considered: soil ingestion, dust inhalation, dermal contact with soil, and groundwater ingestion. Total risks and hazards posed by the soil ingestion, dust inhalation, and dermal contact with soil pathways were dominated by 2,4,6-trinitrotoluene exposure. Total risks fell between or exceeded the USEPA target risk range of 1×10^{-4} to 1×10^{-6} for all pathways and future land uses except inhalation of dust for military use. Hazard indices exceeded 1 for soil ingestion and dermal contact with soil pathways for all future land uses.

The total risk and hazard values for groundwater ingestion were similar for the residential and industrial land use scenarios, assuming a receptor location near the lagoons, with high risks of 4.1×10^{-3} and 1.3×10^{-3} for residential and industrial land use, respectively, and hazard indices of approximately 65 and 37, respectively.

2.1.6 Feasibility Study for Site 4--Explosives Washout Lagoons, Soils Operable Unit (April 1992)

A Feasibility Study for the explosives washout lagoons (Site 4) Soils Operable Unit at UMDA was prepared in April 1992 to evaluate potential remedial alternatives for mitigating soil contamination at the site. The Feasibility Study provides a summary of Remedial Investigation information; a summary of the baseline risk assessment prepared in March 1992; remedial action objectives; identification and screening of potentially viable technologies; and a detailed evaluation of alternatives assembled from the most promising technologies. The following alternatives were evaluated in detail: no action, excavation followed by incineration, and excavation followed by composting. Four potential excavation scenarios, including cleanup to background, were considered; these provided varying degrees of contaminant removal and risk reduction. The alternatives were evaluated for overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements (ARARs); long-term effectiveness; reduction of toxicity, mobility, and volume; short-term effectiveness; implementability; and cost.

The no action alternative failed to provide overall protection of human health and the environment and did not meet ARARs. Incineration and composting provided tradeoffs between degree of risk reduction and total remedial action cost. Incineration provided greater risk reduction than composting, but at approximately twice the present-worth cost for a given excavation depth. An excavation depth of 5 feet below the lagoons was found to provide the greatest percentage risk reduction while achieving ARARs. The most aggressive alternative, a combination of incineration and an excavation to the water table, was shown to be comparable to a cleanup to background, but at a present-worth cost 7 times greater than a combination of the 5-foot excavation and composting.

2.1.7 Remedial Investigation Report (August 1992)

In 1987 the explosive washout lagoons were scored using the Hazard Ranking System which resulted in placing the UMDA on the National Priorities List in July 1987. A Federal Facilities Agreement was signed between the Department of the Army, UMDA, the USEPA, and the Oregon Department of Environmental Quality in October 1989 to ensure the procedures for complying with Federal and State regulations during the environmental response at UMDA. The Remedial Investigation was initiated in 1989 to meet the requirements of CERCLA and the State of Oregon under the terms of the Federal Facilities Agreement.

A Remedial Investigation was prepared for USATHAMA in August 1992 under the BRAC program. The purpose of the Remedial Investigation report was to document the results of the field investigation of more than 50 study sites at UMDA; to present installation-wide and site-specific physical characteristics; and to verify and characterize environmental contamination at the Remedial Investigation study sites. Baseline Risk Assessment and Ecological Assessment reports--which assess the associated potential risks to human health, welfare, and the environment--were submitted concurrently with this document. The ultimate goal of the Remedial Investigation is to collect sufficient data to complete the Baseline Risk Assessment and a Feasibility Study of remedial action alternatives, as needed, for each study site.

The Remedial Investigation field and analytical program included geophysical surveys, soil sampling, groundwater investigations, sump surface water and sediment/sludge sampling, wipe sampling, surveying of study site and monitoring well locations, collection of field quality control samples, and chemical analysis of samples.

The evaluation of data collected during the Remedial Investigation field and analytical program involved a synthesis of background information; evaluation of geotechnical and analytical data; evaluation of chemical concentrations and comparison of regulatory standards and guidelines or background data, where available; and brief assessment of potential contaminant migration.

Based on evaluations of the study sites and site-specific conclusions, there were three possible recommendations for a site, which are summarized as follows:

- ★ ***No Further Action:*** Because no constituents of potential concern were detected in the samples, or the site was being investigated under a separate study from the Remedial Investigation/Feasibility Study, no further action was recommended at 16 sites.
- ★ ***Additional Study Recommended:*** Additional investigation was recommended if the extent of contamination was unknown and the levels of contaminants detected were elevated, the low levels detected needed to be confirmed, or if there was no investigation performed. Additional investigation was suggested at 12 sites.
- ★ ***Evaluation of Remedial Action Alternatives:*** Sufficient data were collected to evaluate potential risks associated with the detected contamination at 30 sites, and no additional sampling was recommended for these locations. If remediation was considered necessary for these sites after the identification of risks in the Baseline Risk Assessment, it was recommended that investigations at these sites proceed to an evaluation of remedial action alternatives.

2.1.8 Human Health Baseline Risk Assessment (August 1992)

USATHAMA conducted a Human Health Baseline Risk Assessment (Risk Assessment) in August 1992 as part of the Remedial Investigation/Feasibility Study investigations at UMDA. The assessment was prepared to verify and characterize environmental contamination at the study sites in terms of potential impacts to human health under current and future land use conditions.

Risks and hazards for all currently exposed populations via all pathways quantitatively evaluated were below the lower bound of the National Contingency Plan risk range of 1×10^{-6} to 1×10^{-4} and below a hazard index of 1, respectively. Under the residential future land use scenario, which is the most conservative future land use scenario, 30 UMDA sites have multipathway carcinogenic risk estimates within or exceeding the risk range of 1×10^{-4} to 1×10^{-6} , and 29 UMDA sites have noncarcinogenic hazard indices exceeding 1. The results of the Risk Assessment indicated that these sites may require remedial alternatives. Preliminary remediation goals were developed for soil and groundwater contamination at these sites.

2.1.9 Asbestos Assessment Survey (August 1992)

The purpose of the Asbestos Assessment Survey was to present the results of a preliminary asbestos survey, which evaluated 289 buildings at UMDA for suspect asbestos-containing material. The survey report is divided into a Base Summary and Individual Building Reports. The Base Summary Report describes the survey scope, methodology, potentially contaminated areas, known or assumed asbestos-containing material by building, recommended remedial actions (based on an algorithm), and order of magnitude cost estimates. The Individual Building Reports detailed the materials that were sampled and/or assessed, results of collected samples, and recommended remedial actions (based on the professional judgment of the inspector) of identified asbestos-containing material.

Generally, asbestos-containing materials at UMDA were found to be in good condition, and the impact on building occupants from asbestos-containing materials present was determined to be low. The major impact was found to be to the maintenance staff responsible for entering areas containing asbestos-containing material not normally accessed by the building occupants or buildings that are inactive.

Asbestos-containing material was found in 121 buildings. Materials in 37 of these buildings were damaged greater than 10 percent, and in 15 additional buildings the damage was between 3 and 10 percent. Although 52 buildings included asbestos-containing material that was damaged or significantly damaged, this material was predominantly located in unoccupied areas such as attic spaces, crawl spaces, or roofs (areas that primarily have an impact only on the maintenance staff at UMDA).

Estimates of the cost to remove each type of asbestos-containing material at UMDA were provided in the survey report. The estimated cost to remove all of the known or assumed asbestos-containing material at UMDA was reported to be between \$11,500,000 and \$22,750,000, based on the unit cost for removing each material individually.

Based on a decision algorithm used during the survey, removal was recommended in 58 buildings at UMDA. Many of these remedial actions are in areas that are not normally contacted or in inactive buildings. Such factors were not considered in the decision algorithm but were considered in the individual building reports. Based on the professional judgment of the inspectors, the recommendation was made in the individual building reports to remove asbestos-containing material in only 32 buildings. According to the inspectors, locations where access was minimal could be placed in an operation and maintenance program, and the cost of removal could be deferred.

2.1.10 Supplementary Remedial Investigation Report (September 1993)

A Supplementary Remedial Investigation Report was prepared for USATHAMA to provide information on 13 additional sites, areas of Site 12 (inactive landfills), and 79 PCB transformer areas that were not included in the Remedial Investigation Report (August 1992). The goal of the Supplementary Remedial Investigation was to collect sufficient data to complete the Supplementary Baseline Risk Assessment and a Supplementary Feasibility Study of remedial

action alternatives, as needed, for the additional study sites. The Supplementary Remedial Investigation included soil sampling, groundwater investigations, sump surface water and sediment/sludge sampling, wipe sampling, surveying of study site and monitoring well locations, collection of field quality control samples, and chemical analysis of samples. For each site, one of three possible recommendations was made: no further action, additional study needed, and evaluation of remedial action alternatives.

Seven sites were recommended for no further action. Eight sites, including PCB transformer locations, were recommended for evaluation of remedial action alternatives, as long as remediation was considered necessary after the identification of risks in the Supplementary Baseline Risk Assessment.

2.1.11 Supplementary Baseline Risk Assessment (September 1993)

In September 1993, the Supplementary Baseline Risk Assessment was prepared for USATHAMA. Analytical results for media sampled during the supplementary Remedial Investigation at each of the 13 additional sites, areas of Site 12 (inactive landfills), and 79 PCB transformer areas were used to calculate risk at these sites.

Groundwater samples were collected and analyzed at three of the UMDA supplementary sites (Sites 69, 70, and 77). Contaminants of concern were limited to four metals (arsenic, barium, selenium, and vanadium). Soil samples were collected from all of the supplementary UMDA sites. No contaminants of concern were identified for Sites 12, 61, 66, 68, 69, 70, 76, 77, 79, and 83, or for 73 of the 79 PCB transformer locations. Contaminants of concern at Site 64 (Locations I and II) were limited to metals and polynuclear aromatic hydrocarbons; lead was the only contaminant of concern for Site 75. Contaminants of concern at Sites 62 and 65 were limited to metals; and PCB 1260 was the only contaminant of concern at the six PCB transformer locations.

In the Supplementary Baseline Risk Assessment, risks and hazards were calculated for all currently exposed populations via all pathways. Those quantitatively evaluated to be less than 1×10^{-6} and 1, respectively, were determined to have no risk. Under the future residential land use scenario, which is assumed to be more conservative than the other five future land use scenarios (light industrial, military, construction, agricultural, and recreational), the following conclusions were drawn from the evaluation of risks and hazards. Ten sites and 73 of the 79 PCB transformer locations did not include any contaminants of concern, so risk and hazard calculations were not performed. Three sites had risk calculations in excess of 1×10^{-6} due to arsenic in groundwater. One of these three had a hazard index greater than 1. Risk was in excess of 1×10^{-6} at one site due to benzo(a)anthracene and chrysene in soil. The multipathway hazard index for this site was below 1. At six transformer locations, the multipathway risk at each location was calculated at 7×10^{-6} due to the presence of PCB 1260 in site soil. A hazard index was not calculated because a reference dose was not available for PCB 1260. None of the supplementary sites had concentrations that resulted in unacceptable exposure levels.

For all sites and receptors evaluated under current land use conditions, carcinogenic risks were below the lower bound of the National Contingency Plan risk range of 1×10^{-6} to 1×10^{-4} , and

hazard indices were less than 1. Therefore, no preliminary remediation goals were calculated for current land use conditions at UMDA. Preliminary remediation goals developed for the future land use scenario in the Baseline Risk Assessment Report were applicable to the supplementary UMDA sites.

2.1.12 Record of Decision for the Explosives Washout Lagoons, Soils Operable Unit (September 1992)

A Record of Decision for the Explosives Washout Lagoons, Soils Operable Unit completed in September 1992 presented three remedial alternatives. The U.S. Army and USEPA selected the following alternative with Oregon Department of Environmental Quality concurrence:

- ★ Excavation of lagoon soils having 2,4,6-trinitrotoluene or hexahydro-1,3,5-trinitro-1,3,5-triazine (commonly referred to as Royal Demolition Explosive) concentrations greater than 30 parts per million each (initially estimated to be 6,800 tons of soil);
- ★ On-site biological treatment of excavated soils, via composting, to 2,4,6-trinitrotoluene and Royal Demolition Explosive concentrations of 30 parts per million or less; and
- ★ Replacement of composted soils in the excavation, covering the area with two feet of clean soil, and revegetating.

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy uses permanent solutions and alternative treatment technologies to the maximum extent practicable, and satisfies the statutory preference for remedies that reduce toxicity, mobility, or volume as a principal element.

2.1.13 Record of Decision for Site 1--Deactivation Furnace, Soils Operable Unit (December 1992)

A Record of Decision for the Deactivation Furnace Soils Operable Unit was prepared in December 1992. Five alternatives were compared for long-term effectiveness, reduction of toxicity, mobility, or volume of the contaminants through treatment, short-term effectiveness, implementability, and cost. The remedy selected by the U.S. Army, USEPA, and Oregon Department of Environmental Quality included solidification and stabilization of all soil with lead concentrations exceeding the cleanup level of 500 milligrams per kilogram (mg/kg) and disposal of the solidified soil in the UMDA Active Landfill.

2.1.14 Underground Storage Tank Investigation Report (February 1993)

An Underground Storage Tank Investigation Report was prepared in February 1993 for the USAEC (formerly USATHAMA). The report presents the results of the field investigation, assesses the potential for contamination, and presents recommendations for further action. The

investigation of underground storage tanks at UMDA included sampling and chemical analysis of the unknown contents of five tanks, tank leak testing of 30 active tanks, geophysical surveys at 14 potential underground storage tank sites, and soil gas surveys at 17 potential underground storage tank and fuel oil spill sites.

Twenty-one of the 30 tanks leak tested met State tightness criteria and required no immediate action. However, because all underground storage tanks are required to be treated as regulated tanks, it was recommended that annual leak testing be performed to evaluate the integrity of the tanks and to identify potentially leaking units.

Two of the 30 active tanks tested failed the leak tests, while 7 had inconclusive results. Additionally, one tank could not be leak tested during the underground storage tank investigation. To evaluate any potential leakage from these 10 tanks, a total of 151 soil samples from 35 borings were proposed to be collected adjacent to the tanks and fuel supply lines. The samples would be analyzed for target compound list volatile organic compounds, base-neutral acids, and total petroleum hydrocarbons (TPHs).

The results of the geophysical surveys indicated unlikely geophysical targets at 10 potential underground storage tank sites, possible geophysical targets at 3 potential underground storage tank sites, and a probable geophysical target at 1 potential underground storage tank site. No further action was recommended for the 10 sites where underground storage tanks were not likely present. However, excavation of the geophysical targets by UMDA was recommended for the three possible and one probable underground storage tank sites. If abandoned underground storage tanks are encountered during the excavations, it was recommended that they be removed and the soil tested and remediated, if necessary, according to State tank closure procedures.

The results of the soil gas surveys at 17 sites indicated potentially significant soil contamination at Sites 73 and 74. At these locations, it was proposed that soil samples be collected from three 10-foot borings at each location to confirm potential soil contamination in areas indicated to have elevated soil gas results. These samples should be analyzed for target compound list volatile organic compounds, base-neutral acids, and TPH. The remaining 15 sites contained insignificant traces or low concentrations of volatile organic compounds and were not considered to be a concern. Therefore, no further action was recommended at these sites.

2.1.15 Record of Decision for the Inactive Landfills Operable Unit (August 1993)

In a Record of Decision dated March 1993, the Army, USEPA, and Oregon Department of Environmental Quality agreed that no action needed to be taken regarding the inactive landfills operable unit. This decision was based on information generated during the Remedial Investigation, which indicated that the site does not pose an unacceptable threat to human health and/or the environment.

2.1.16 Record of Decision for the Active Landfill Operable Unit (August 1993)

The Army, USEPA, and Oregon Department of Environmental Quality decided that no remedial action was necessary, on the basis of information generated during the Remedial Investigation which indicated that the site does not pose an unacceptable threat to human health and/or the environment. The landfill was scheduled to cease receipt of municipal waste in 1993, cease receipt of all materials in 1994, and go through formal closure in accordance with Oregon Department of Environmental Quality regulations in late 1994 in accordance with the Record of Decision. A low-permeability soil cap will be placed on the landfill, and groundwater at the site will be monitored for at least 5 years after closure to ensure that the landfill does not have a significant negative effect on local groundwater quality.

2.1.17 Draft Record of Decision for the Explosive Washout Plant (January 1994)

The Draft Record of Decision was prepared to describe the selected remedy for the explosive washout plant. It was described as follows:

- ★ The purpose of this washout plant operable unit remedy is to eliminate the health and environmental risks associated with the washout water sump and reduce the potential safety risks associated with the washout plant building. The contaminated soils around the washout plant will be remediated under the explosive washout lagoon soils operable unit and are not addressed in this Record of Decision. The major components of the selected remedy include the following:
 - Cleanout and disposal of explosive waste sludge and contaminated washout water from the washout water sump.
 - Decontamination by flaming and landfill disposal of the concrete washout water sump.
 - Pretreatment of the washout plant process equipment (removal of asbestos insulation, cleanup of pigeon droppings, and solvent flush).
 - Treatment of the washout plant and process equipment by hot gas decontamination and removal of the process equipment from the washout plant.

2.1.18 Draft Record of Decision for the Miscellaneous Sites (February 1994)

In February 1994, a Draft Record of Decision was prepared to describe the selected remedy for the miscellaneous sites operable unit. The selected remedy for this operable unit addresses the reduction of health and environmental risks associated with the soils at two sites, the Defense Reutilization Marketing Office (Site 22) and the Building 493 Paint Sludge Discharge Area (Site 36). The selected remedy of solidification/stabilization is the final remedial action planned for those soils. The major components of the selected remedy include the following:

- ★ Excavation and stockpile of contaminated soil at Sites 22 and 36. This would involve the excavation of approximately 1,700 cubic yards of soil.
- ★ Treatment of contaminated soil in a mobil solidification/stabilization system at a rate of approximately 50 cubic yards per day to produce a cement-like soil mixture.
- ★ Discharge of treatment material from the mobil solidification/stabilization system into a trailer for transport and discharge to the on-site active landfill.
- ★ Replacement of excavated soils with clean soil and with new vegetation.

2.1.19 Draft Record of Decision for the Ammunition Demolition Area (February 1994)

The Draft Record of Decision, issued by the Army and USEPA for public review, describes the selected remedy for the Ammunition Demolition Activity area as follows:

- ★ The selected remedy for the contamination at the Ammunition Demolition Activity includes the implementation of actions to (1) clean up chemically contaminated soils; (2) remove unexploded ordnance items from the ground surface; and (3) detect and quantify unexploded ordnance below the ground surface. The specific steps involved in the cleanup of contaminated soils at the Ammunition Demolition Activity will include:
 - Excavation of approximately 14,000 cubic yards of contaminated soil at five separate sites at the Ammunition Demolition Activity (Site Numbers 15, 17, 19, 31, and 32). Unexploded ordnance items would be removed from these sites during excavation as necessary to permit safe excavation and access.
 - Treatment of contaminated soils by a mobile solidification/stabilization system.
 - Disposal of the treated soil from the solidification/stabilization system into the on-site UMDA landfill.
 - Restoration of excavated areas with clean backfill and vegetation.
- ★ Risks to the environment and human health and safety posed by the presence of unexploded ordnance will be quantified and reduced by the following actions:
 - Conducting a metallic object survey over the entire Ammunition Demolition Activity to obtain an approximate idea of how much metallic debris would have to be removed to clear the Ammunition Demolition Activity of possible ordnance.

- Conducting (concurrent with metallic object survey) a "visual sweep" over the Ammunition Demolition Activity to locate and remove the objectives identifiable as ordnance.
- * Following the actions described above to clean up contaminated soil and detect and remove unexploded ordnance, institutional controls will be applied to the Ammunition Demolition Activity to permanently limit its use to the current restricted Army use or other use with equivalent protectiveness.

2.1.20 Draft Record of Decision for the Explosive Washout Lagoon Groundwater (January 1994)

This Draft Record of Decision describes the selected remedy for the groundwater operable unit. This operable unit is the second of two that are planned for the explosives washout lagoons. The first addressed the explosive washout lagoon Soils. The Groundwater operable unit involves remediation of contaminated groundwater beneath the lagoons and is being integrated with facility-wide groundwater issues. The major components of the selected remedy for the contaminated groundwater include the following:

- * Extraction from a series of wells (approximately three) over a 10-year period
- * Pretreatment by metals precipitation
- * Treatment by granular activated carbon to meet the proposed cleanup levels
- * Reinfiltration into an aquifer.

2.1.21 Radon Screening of Buildings (August 1993)

The radon survey report for UMDA, prepared for USAEC under the BRAC Program in August 1993, presents the results of two surveys: a 12-month survey in 1991, and a 90-day survey in 1992-1993. Considering the two surveys together, sample results are available for a total of 252 separate buildings and structures at UMDA. Conclusions and recommendations that may be drawn on the basis of these surveys are discussed below.

In accordance with USEPA guidelines, no further action was recommended for the 121 buildings (120 sampled in 1991 and 1 sampled in 1993) that had no radon gas concentrations exceeding the detection limit of 0.5 picoCuries per liter (pCi/L). Radon gas concentrations in another 121 buildings ranged from 0.5 to 3.8 pCi/L, less than the USEPA-recommended value of 4.0 pCi/L. In accordance with USEPA guidelines, no further action is recommended at these buildings as long as building conditions and use patterns remain unchanged. Follow-up measurements may be recommended, however, prior to changes in status, particularly in buildings that had radon concentrations close to 4.0 pCi/L. No further action was recommended for Building 5, because the radon gas concentration was equal to 4.0 pCi/L.

Seven of the 84 igloos subjected to a 90-day radon test had radon concentrations ranging from 4.1 to 16.9 pCi/L, exceeding the USEPA-recommended value of 4.0 pCi/L. USEPA recommends that no action be taken on the basis of one short-term test; instead, follow-up testing should be done, consisting of either a long-term test or a second short-term test. Because

the igloos are not occupied, no mitigation measures were recommended. According to UMDA personnel, the most likely postclosure use of the igloos is for agricultural storage, e.g., crops, however, routine human occupancy is unlikely).

In addition to the 7 igloos, samples from Buildings 1 and 415 had radon gas concentrations greater than the USEPA-recommended value of 4.0 pCi/L. USEPA recommends taking action to reduce radon concentrations in homes in which radon levels are confirmed to be 4.0 pCi/L or higher. Although these buildings are workplaces, not homes, and the duration of radon exposure is likely to be less than that expected in a residence, the basements of the buildings are routinely occupied. Consequently, it was recommended that mitigation measures be considered. In addition, the Oregon Health Division applies USEPA criterion to both homes and workplaces. USEPA recommends that a qualified contractor (i.e., a participant in USEPA's Radon Contractor Proficiency program) be hired to perform mitigation procedures when levels equal or exceed 4.0 pCi/L. Such mitigation actions were recommended for the two UMDA buildings.

2.1.22 Internal Draft Record of Decision - Supplementary Remedial Investigation Study Sites and Polychlorinated Biphenyls Transformer Locations (February 1994)

This internal draft Record of Decision summarizes the new portions of Site 12, the 13 additional study sites, and the 79 PCB transformers locations. Site maps and data summary tables are also provided for the transformer locations. The selected remedy for this operable unit is no action. Because this remedy will not result in hazardous substances remaining onsite above health-based levels, the 5-year review will not apply to the no action remedy.

2.2 FEDERAL, STATE, AND LOCAL GOVERNMENT REGULATORY RECORDS

Information regarding permit and compliance status, enforcement actions, and the hazardous waste generator status of UMDA was obtained through on-site and telephone interviews, an electronic data base search, and record reviews at various Federal, State, and local regulatory agencies.

Record reviews and interviews were conducted at the Oregon Department of Environmental Quality and the USEPA Region X, Portland, Oregon Office. The records available at the Regional State Office in Pendleton, Oregon, were also reviewed. Federal and Army records made available by USAEC and UMDA were also reviewed.

An electronic data base search of Federal and State records resulted in a Federal/State Data Report and Map containing information from the following data bases:

- ★ National Priorities List
- ★ Comprehensive Environmental Response Compensation, and Liability Information System
- ★ Toxic Release Inventory
- ★ Resource Conservation and Recovery Information System Treatment and Storage Facility

- ★ Resource Conservation and Recovery Information System Large Quantity Generators
- ★ Resource Conservation and Recovery Information System Small Quantity Generators
- ★ Civil Enforcement Docket
- ★ Emergency Response Notifications System
- ★ Facility Index System
- ★ Nuclear Facilities
- ★ Underground Storage Tanks
- ★ Leaking Underground Storage Tanks
- ★ State Affected Media and Contaminants.

The search encompassed the properties within a 3-mile radius from the center of the installation. A copy of the data base search results are included in Appendix B. A summary of relevant regulatory information obtained during the record review process is presented below.

2.2.1 Permits and Permit Applications

The permit status of UMDA is summarized below from information obtained through prior environmental document reviews, Federal and State record searches, installation record searches, and interviews with installation personnel.

Air: UMDA has an air permit (Permit Number 25-0024) issued by the State of Oregon that allows it to operate the deactivation furnace and to detonate explosives in the Ammunition Demolition Activity area.

Solid Waste Disposal: UMDA has a Solid Waste Disposal permit (Permit Number 320) issued by the State of Oregon, which allows the facility to place nonhazardous solid materials into the active landfill at the installation until mid-1994. After the landfill stops receiving municipal solid waste, the permit allows only for the disposal of solidified soil from remedial actions into the landfill.

Hazardous Waste: UMDA has submitted a number of RCRA Part B Permit Applications for waste storage, treatment, or disposal at the facility. These applications have not yet resulted in the issuance of a permit. The current application allows the facility to store hazardous wastes while in interim status. The hazardous waste storage areas are located at Buildings 203; at the Block K igloos, where the archaic M-55 missiles are stored; and at the Block J igloos, where hazardous decontamination materials are stored. The current Part B Permit Application also allows UMDA to operate the thermal treatment unit (i.e., open burning and open detonation areas) located at the Ammunition Demolition Activity area.

Wastewater: UMDA does not have any National Pollutant Discharge Elimination System permits for any of its current or former wastewater discharges. The installation sewage treatment plant discharges to a leaching field. This system is operated under a Water Pollution Control Federation permit issued by Oregon Department of Environmental Quality.

Radiation: The Department of the Army issued a radiation permit to UMDA October 17, 1990 for the use of C-14 in experiments on the composting of explosive contaminated sediments. The permit expired on October 20, 1993.

2.2.2 Inspection Reports and Enforcement Actions

TETC review identified two Notices of Violation for RCRA violations at UMDA. The first notice was issued in August 1984 and stated that the Contingency Plan was not posted at a hazardous waste storage site; that inspection logs at storage locations were not being properly maintained; and that hazardous waste was stored outside the hazardous waste storage area. The second notice was issued in June 1989, and stated that containers holding hazardous waste appeared to be leaking; a tank system containing nerve agent decontamination brine had no secondary containment; one manifest was found not to have one of the required signatures; hazardous waste was observed stored outside the hazardous waste storage area; a crack was observed in the rotary kiln; a hazardous waste container was improperly labelled; and the Contingency Plan had not been updated to reflect recent personnel changes. After receiving each notice, UMDA responded with corrective measures for each violation listed.

A notice of noncompliance to the air permit, issued in June 1989, stated that the Annual Meeting Report due January 15, 1989, was submitted to the State several months late. *months*

RCRA Inspection Reports from January 1990 and January 1992 were provided to TETC during the site visit. The January 1990 report noted violations concerning the improper labeling of waste, failure to do tank testing, lack of secondary containment, failure to perform weekly inspections of hazardous waste containers, failure to maintain the required 2 feet of aisle space between drum pallets, failure to keep hazardous waste containers closed during storage, and failure to attach land ban notification to manifests. In the January 1992 report violations were noted concerning the improper labeling of waste, failing to maintain copies of Land Disposal Restriction Notifications, and establishing a hazardous waste storage area without first obtaining a permit.

2.3 INTERVIEWS

TETC conducted a site visit at UMDA on November 2-4, 1993, to collect information and interview individuals associated with the installation. TETC's team included Gail Carter and Dave Peck.

Individuals interviewed at the installation included Charles Lechner, Mark Daugherty, J. Patrick Richie, Richard Marsh, Robert Moore, Larry DelGrosso, and Brad Still. In addition, TETC team visited regulatory agencies in Portland, Oregon, to obtain information not available at the installation. Dave Peck also visited the State Regional Office in Pendleton, Oregon, to review records. A complete list of the agencies visited or contacted and the people interviewed is provided in Table 2-2.

TABLE 2-2
LIST OF PERSONNEL INTERVIEWED, UMATILLA DEPOT
ACTIVITY, OREGON

| Reference | Name/ Phone Number | Location | Dates of Employment | Job Position |
|-----------|--|---|------------------------|---|
| a | Charles Lechner (410) 671-1605 | U.S. Army Environmental Center, Base Closure Division | 1986 to present | CERFA Project Manager |
| b | Lt. Col. Moses Whitehurst (503) 671-5200 | U.S. Army, UMDA | 1993 to present | Base Commander |
| c | Mark Daugherty (503) 564-5294 | UMDA, Industrial Risk Management Division | 1988 to present | CERCLA BRAC Environmental Coordinator |
| d | J. Patrick Richie (503) 564-5294 | UMDA, Environmental Safety and Compliance Division <i>IS RICHIE</i> | 1984 to present | Environmental Scientist |
| e | Richard Marsh (503) 564-5235 | UMDA, Mission Division Laboratory Support Branch | 1981 to present | Chemical Equipment Mechanic |
| f | Robert Moore (503) 564-5212 | UMDA, Mission Division Inspection Branch | 1990 to present | Chief of Support and Inspection Branch |
| g | Larry DelGrosso (503) 564-5303 | UMDA, Mission Division Maintenance Branch | 1985 to present | Maintenance Supervisor |
| h | Brad Still (503) 564-5294 | UMDA, Environmental Office | 1992 to present | Hazardous Waste/ Hazardous Materials Compliance Inspector |
| i | Harry Craig (503) 326-3689 | U.S. Environmental Protection Agency, Region X, Portland, Oregon | 1989 to present | Remedial Project Manager |
| j | Bill Dana (503) 229-6530 | Oregon Department of Environmental Quality, Waste Management and Cleanup Division | 1988 to present | Project Manager |
| k | Katrina Hamilton (503) 276-4063 | Oregon Department of Environmental Quality | 1991 to present | Office Specialist II |
| l | Graciela Arrastia (503) 229-6886 | Oregon Department of Environmental Quality, Air Quality Division | 1985 to present | Records Specialist |
| m | Helen Buschert (503) 229-6461 | Oregon Department of Environmental Quality, RCRA Records Division | 1990 to present | Records Specialist |

Key: CERFA = Community Environmental Response Facilitation Act
BRAC = Base Realignment and Closure Act
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
RCRA = Resource Conservation and Recovery Act

2.4 VISUAL INSPECTIONS

During the site visit, inspections were conducted throughout the facility and at adjacent properties. The purpose was to confirm findings reported in previous studies and information collected through interviews, as well as to identify new areas of concern. The inspection consisted of automobile drive-through and walk-through surveys of areas in which CERCLA-regulated and nonregulated substances may be stored, released, or disposed. Contamination sources were noted and leaks, spills, and other evidence of releases were observed and quantified; no samples were collected.

The flyover of the facility and adjacent properties was conducted on November 4 from rotary aircraft. TETC team and Mark Daugherty, Lt.Col. Moses Whitehurst, Patrick Ritchie, and Michael Sweet of the UMDA were the only passengers; two pilots and a technical assistant were in command of the aircraft. The flyover originated at the UMDA airfield, in the southeast corner of the depot, at approximately 1:00 p.m.

The flyover resulted in a different view of the installation and observations of CERFA-related issues that were not encountered while on the ground. First, the installation boundaries were flown, and then the installation was covered in a back-and-forth pattern. The flight time was approximately 1.5 hours.

2.4.1 Inspection at Umatilla Depot Activity

Evidence was gathered regarding current or past contamination with the following substances:

Asbestos-containing material: The presence of asbestos-containing material in buildings at UMDA was identified in the Asbestos Assessment Survey. This survey consisted of an inspection of 285 buildings and structures; it did not include the storage igloos in Blocks A through K.

Lead-based paint: A quantitative lead-based paint survey has not been conducted at UMDA. Lead-based paint was assumed to be present in buildings that were constructed prior to 1978. None of the storage igloos in Blocks A through K, the safehouses (700 series structures), or transfer depots (800 series structures) were included in the analysis for this CERFA Report, as it was assumed that these structures were not painted.

Polychlorinated biphenyls: PCB-containing equipment such as electrical transformers have been identified in previous investigations. Transformers that were still in use and not leaking were not inspected or included in this report. PCB storage areas, leaking transformers, and the locations of former PCB equipment leaks were evaluated.

Radon: The presence of radon gas at UMDA was identified in the Radon Screening of Buildings Report, which combined the results of two sampling efforts conducted in 1991 and 1993. The 1991 effort sampled 165 buildings (no results were available for Buildings 5 or 165). The 1993 survey consisted of sampling in 97 separate buildings, including 5 that were also

sampled in 1991. Only 10 percent of igloos in Blocks A through H and Block J were sampled because they are not inhabited.

Unexploded ordnance: Information obtained from previous studies was used to identify unexploded ordnance areas at UMDA.

Radionuclides: Installation personnel were interviewed and installation files searched to obtain data on radioactive material storage and use. In addition, the U.S. Army Environmental Hygiene Agency Health Physics Division provided the contractor with information obtained from installation files and U.S. Army Environmental Hygiene Agency archival report files. This information included Nuclear Regulatory Commission licenses and Department of the Army Radioactive Material Authorizations, and U.S. Army Environmental Hygiene Agency reports on radioactive material decommissioning.

Petroleum release or disposal: Areas of potential releases that were identified in the Enhanced PA, Remedial Investigation, Supplementary Remedial Investigation, and the records search were inspected. Evidence of discoloration or spills was noted. Monitoring well locations identified in the document reviews were observed. Visual evidence of soil contamination provided in previous documents was verified.

Petroleum storage: Previous reports identified underground and aboveground storage tanks located at the facility. The locations, volumes, past and present conditions, and evidence of removal actions related to these units were verified during the inspections to the extent possible. Areas and buildings used to store pesticides and herbicides were identified in the document reviews and were also visually inspected.

Hazardous substance release or disposal: Known disposal sites and release sites that were identified by previous investigations were observed.

Hazardous substance storage: Previous reports identified hazardous substance storage locations. These are areas where paints, solvents, pesticides, and wastes that contain hazardous constituents are located.

2.4.2 Inspection of the Adjacent Property

The adjacent property was inspected. Prior to the site visit, a data base search was performed for the area adjacent to UMDA within a 3-mile radius to identify small- and large-quantity waste generators, underground storage tanks, and leaking underground storage tanks. Both Federal and State data bases were searched (see Section 2.2 of this report). Information obtained from the search was verified through visual inspections and flyover. Possible areas of environmental concern were visually inspected to determine their potential for contamination.

2.5 TITLE DOCUMENTS

TETC conducted a review of tract maps and transfer documents to identify the former property owners of the BRAC property at the time of its transfer to the Army. The purpose of this review was to determine the property's prior use and environmental condition at the time of its transfer. This review, did not result in additional information. Previous ownership and the dates of transfer to the Army are indicated on Figure 5-2.

2.6 NEWSPAPER ARTICLES AND MEDICAL RECORDS

A search of UMDA, USEPA, and State records revealed one relevant newspaper article. An article in the *Oregonian*, dated July 12, 1993, describes public concern over the Army's plan to incinerate certain chemical weapons at UMDA and seven other locations. All medical wastes are shipped offsite to Fort Lewis, Washington. A search of local newspapers was not conducted. It is likely that UMDA, USEPA, and State files do not contain all relevant newspaper articles that have been published. No records regarding medical or biohazardous on-site wastes were found during the file search.

3.0 PROPERTY BACKGROUND INFORMATION

This section presents an overview of past and current operations at UMDA and a discussion of environmental changes associated with the facility. It addresses activities relevant to waste management practices and significant environmental incidents that occurred since the Remedial Investigation was conducted.

3.1 GENERAL BACKGROUND

The original 16,000 acres of land for UMDA was purchased by the U.S. Army in 1940 from private owners and transfer of lands from the U.S. Bureau of Land Management. Prior to acquisition, these lands were either undeveloped or used for agricultural pursuits, including fruit ranges, dairy farming, and poultry farming.

UMDA was established in 1941 by the U.S. Army as an ordnance facility for storing conventional munitions. Subsequently, the functions of the depot were extended to include ammunition demolition (1945), renovation (1947), and maintenance (1955). In 1962, the Army began to store chemical munitions at UMDA. In August 1973, the installation was redesignated as an "Activity" by the U.S. Army Materiel Command.

The construction of 1,001 ammunition storage igloos began in February 1941. By the end of 1941, the installation began functioning as an ammunition storage facility; in 1947, an ammunition renovation complex was constructed. Two ammunition maintenance buildings were added in 1955 and 1958. Between 1957 and 1960, approximately 4,000 additional acres of private and public lands around the depot perimeter were annexed for safety zones.

Chemical agent-filled munitions and 1-ton containers of chemical agents have been stored in Block K at UMDA since 1962. However, no chemical weapons have been used, manufactured, or tested at the depot. In addition to the chemical munitions, conventional munitions are stored in magazines and igloos in Blocks A through J. Missiles and missile fuel components, including unsymmetrical dimethyl hydrazine and red fuming nitric acid (red fuming nitric acid), were also stored at UMDA from the mid-1950s to the early 1960s.

No manufacturing operations have been conducted at UMDA, but munitions testing, rework, demolition, and disassembly operations have been performed in several areas throughout the installation. The explosive washout plant area, located in the central portion of UMDA, and the Ammunition Demolition Activity grounds, located along the western boundary of UMDA, are the most noteworthy of these areas.

The explosive washout plant was active from the mid-1950s through the mid-1960s. The plant's operations, which took place in Building 489, included the removal of explosives from munitions, bombs, and projectiles by water or steam-cleaning techniques. Some of the residual effluent from this washout operation was ultimately discharged to one of two lagoons located to

the west of the plant. The Ammunition Demolition Activity grounds have been used since 1945 to store, detonate, and dispose of conventional munitions.

UMDA continues to be used to store containerized chemical agents, including agents GB, VX, and H; white phosphorus projectiles; missiles and propellants; and conventional munitions in on-site igloos. Munitions rework and demilitarization of conventional munitions are still performed (e.g., defective or expired lots of demilitarized powder are routinely burned in the Ammunition Demolition Activity area).

Demilitarization incinerators designed to destroy chemical agents may be constructed at UMDA in the future. The incinerators would be used to dispose of chemical agents currently stored at UMDA and possibly those stored at other Army depots. UMDA is in the process of applying for a permit under RCRA to construct the incinerators and perform this operation.

3.1.1 Past Activities

Past activities at UMDA consist of materials storage, ammunition demolition, maintenance, ammunition renovation, Defense Reutilization and Marketing Office activities, waste disposal, and firing range operations.

Materials Storage Facilities: Earth-covered, reinforced-concrete storage igloos (1,001 total) are located throughout UMDA for storage of various munitions and wastes. The igloos are semicircular arches, with floor dimensions of approximately 26.5 feet (width) by 81 or 61 feet (length), and a maximum ceiling height of approximately 13 feet. Igloos containing chemical munitions/wastes reportedly have chemical resistant, epoxy-coated floors.

Approximately 350 feet separates igloos in a given row. The space between igloos was once used for temporary storage of munitions and other materials prior to placement in the igloos. These open storage areas are characterized by small mounds of soil approximately 2 feet high and 3 feet wide forming a rectangular border around the 50- by 80-foot storage areas. In past years, these open storage areas were periodically treated with a thin coating of road-oil type material to suppress dust.

The igloos of particular concern are the ones containing chemical munitions and wastes. Igloos within the Block K storage area house M-55 rockets, which contain either GB or VX nerve agents. Selected igloos in Block J contain decontamination residues from chemical warfare agent cleanups, including decontamination equipment, protective clothing, and brine wastes. Approximately 30 igloos in Block I contain CS crystals (tear gas), which is a class 5 commodity and considered to be a conventional weapon. All wastes in the igloos are stored in 55-gallon drums.

Block K igloos are inspected at regular intervals to monitor the condition of the rockets. VX rocket igloos are selected at random for yearly inspection. All GB rocket igloos are inspected quarterly, with additional weekly inspections of the igloo drains. The rockets themselves are stored in overpack containers to minimize the possibility of a leak being released to the environment. The inspection procedure consists of visual examination of the housing containers

and air monitoring using specially designed detection instruments. Leaking munitions are isolated by overpacking in an agent-, liquid-, and vapor-tight container specifically designed for this purpose. The overpacked munitions are then removed and stored in a magazine reserved for defective munitions.

Ammunition Demolition Activities: The Ammunition Demolition Activity area, located on the western end of UMDA, contains the following site areas that were previously or are currently used for a specific ordnance disposal activity:

- ★ Site 7, Aniline Pit
- ★ Site 8, Acid Pit
- ★ Site 13, Smoke Canister Disposal Area
- ★ Site 14, Flare and Fuse Disposal Area/Bird Cage Area
- ★ Site 15, 2,4,6-trinitrotoluene Sludge Burial and Burn Area
- ★ Site 16, Open Detonation Pits
- ★ Site 17, Aboveground Open Detonation Area
- ★ Site 18, Dunnage Pits
- ★ Site 19, Open Burning Trenches/Pads
- ★ Site 21, Missile Fuel Storage Areas
- ★ Site 31, Pesticide Pits
- ★ Site 32, Open Burning Trays
- ★ Site 38, Pit Field Area
- ★ Site 41, GB/VX Decontamination Solution Burial Areas
- ★ Site 55, Trench/Burn Field
- ★ Site 56, Munitions Crate Burn Area
- ★ Site 57, Former Pit Area Locations
- ★ Site 58, Borrow/Burn/Disposal Area
- ★ Site 59, GB/VX Decontamination Solution Disposal Areas
- ★ Site 60, Active Firing Range.

In general, these areas were used to burn, detonate, or dispose of ordnance and other solid wastes generated at UMDA from 1945 to the present. UMDA retirees who worked in this area indicated that other materials than those reported may have been handled at many of these sites (e.g., there could be more at the smoke canister disposal area than just smoke canisters).

Maintenance Activities: Maintenance operations have taken place at Buildings 4, 5, 7, 10, 11, 31, and 75.

- ★ Building 4 is used as a machine shop. Activities performed here include metal parts machining, welding, repair and cleaning of steam cleaning equipment, and brush painting.
- ★ Building 5 is a vehicle garage. Typical activities conducted in this building include battery charging, steam cleaning, welding, engine maintenance and overhaul, and parts cleaning.

- ★ Building 7 is a carpenter shop. Wood cutting, spray painting, and brush painting are performed here.
- ★ Building 10 is the diesel repair shop. Activities performed here include cleaning and maintenance of diesel engines, brush painting, and battery charging.
- ★ Building 11 is the plumbing and electrical shop. Activities performed here include welding, soldering, cleaning of electrical motors, plumbing, pipe fitting, and brush painting.
- ★ Building 31 is the motor pool. The only maintenance performed in Building 31 is battery charging. Light maintenance of vehicles has been performed in this building in the past.
- ★ Building 75 is the pest control building. Pesticide mixing is done in this building.

Ammunition Renovation Activities: Ammunition renovation activities have taken place at the following buildings: Building 131 (abrasive blasting, welding, cleaning of rocket cases, and spray painting of ammunition); Building 417 (spray painting and deep drill of 105-mm shells); Building 431 (spray painting and stenciling of ammunition); Building 434 (spray painting and removing tetryl charges from grenades); Building 489 (shell washout operations); Building 493 (spray painting, abrasive cleaning of shell bases, and ammunition demilitarization); and Building 608 (spray painting and buffing of shell bands).

Defense Reutilization and Marketing Office Activities: The Defense Reutilization and Marketing Office Area occupies approximately 1 acre in the southwestern portion of the administration area. Approximately 50 percent of the Defense Reutilization and Marketing Office Area is paved with asphalt; the remainder is bare ground. A portion of the paved area includes a warehouse building. The site is surrounded by a chainlink fence. The Defense Reutilization and Marketing Office Area is used to store scrap or salvage material, such as scrap metals, wooden crates and pallets, and waste oil, prior to removal and disposal offsite. Rifles, empty projectiles, and brass and lead bullets, as well as scrap metals, vehicles, and furniture are also stored in this area prior to being sold. In addition, leaking transformers containing PCB-contaminated oil were reportedly stored temporarily on the bare ground under the west end of a metal shelter located at the southwest end of the site.

Waste Disposal Activities: Numerous disposal and treatment facilities have been located at UMDA. Some are still in operation. The explosive washout lagoons, no longer in operation, were formerly used to collect and infiltrate liquid wastes from the removal of explosives from obsolete bombs. The sewage treatment plant currently in operation treats domestic wastewater, and consists of a Parshall flume, two Imhoff tanks, a sludge drying bed, and a tile field percolation system. Three inactive landfills located in the south-central and west-central parts of the facility served as uncontrolled disposal sites prior to 1968. The State-licensed Active Landfill is currently used as a disposal area for garbage and has been in use since 1968. The Active Landfill will stop accepting garbage on ~~January~~ ^{April} 7, 1994, after which time only solidified soils from remedial actions will be accepted.

Active Firing Range: An active firing range is located near the southwest corner of the Ammunition Demolition Activity grounds. This site includes an active rifle and machine gun and grenade range in the western portion and an active pistol range in the eastern portion. No impact areas have been created behind the targets in either shooting location; bullets that miss the targets land in the open areas of the Ammunition Demolition Activity grounds to the north. The remains of a former trench are located north of the pistol range. No materials appear to have been intentionally disposed of in the trench, but many bullets landed in this area. The firing range has been in use by the National Guard since the early 1980s.

3.1.2 Current Activities

Current activities at UMDA include weapons storage, ammunition detonation, ammunition burning, and maintenance. Some conventional weapons are currently stored at UMDA. Chemical weapons are also currently stored in Block K igloos. The chemical weapons stored at UMDA represent approximately 11 percent of all the chemical weapons in the United States. Conventional weapons are gradually being removed from UMDA, either by transporting them to another storage facility or by destroying them at the Ammunition Demolition Activity. Selected ammunition is being destroyed on a regular schedule at the Ammunition Demolition Activity at UMDA. Open detonations are performed at the detonation pits, and solid propellant is destroyed by burning in two burning trays. These activities are being conducted under a State of Oregon Air Pollutant Discharge Permit.

Most of the current maintenance of UMDA is done in Building 5 (the garage). The garage has experienced a much reduced level of activity in recent years, as have all the other maintenance activities. Most of the other maintenance activities at the installation, such as the carpenter shop, have only one or two people employed and operate at a very low level of activity.

Hazardous wastes are currently stored at Building 203, which is under an interim RCRA Part B Permit to store, treat, or dispose of hazardous wastes. Only the northeast corner of this building is under interim permit. The area is fenced and has a continuous concrete berm which surrounds the area. Signs listing storage activities and emergency telephone numbers were posted.

A few of the properties at UMDA are leased to outside activities. The U.S. Postal Service leases a building in the administration area. Some of the switching tracks at the facility are leased to Union Pacific Railroad. Building 115 and the surrounding property are leased to the Oregon National Guard, and U.S. West Communications, Inc. leases a portion of Building 2.

3.2 ENVIRONMENTAL CHANGES AT UMATILLA DEPOT ACTIVITY

Overall, operations at UMDA have been reduced since the Remedial Investigation was conducted in 1992. One exception has been the use of the detonation pits located at the Ammunition Demolition Activity. These detonation pits have experienced an increase in activity due to the increased number of munitions being destroyed there.

4.0 INVESTIGATION RESULTS

This section describes the results of the CERFA investigation. The first part describes all areas within the BRAC property that have been addressed in reports prior to the CERFA investigation, and the second part describes all areas within the BRAC property that have not been addressed in previous reports. The third part identifies adjacent properties that may be potential sources of contamination. The fourth part describes areas containing items not regulated by CERCLA, and the fifth part describes areas where remediation has occurred. Part six describes real property within the BRAC property that will be retained by the Army.

4.1 PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATIONS

This part describes both existing areas requiring environmental evaluations and those that have undergone change.

4.1.1 Existing Areas Requiring Environmental Evaluations

Table 4-1 lists all areas requiring environmental evaluation (AREEs) within the BRAC property that were identified and addressed in the Enhanced PA, the Remedial Investigation and Supplementary Remedial Investigation, and Risk Assessment. During the Enhanced PA, each site or area identified was given a site number and name. During the Enhanced PA, the AREEs or sites were not investigated further in the Remedial Investigation or Supplementary Remedial Investigation and were "dropped" from the original list of AREEs. For this report, the AREE number will be the same as the site number. The Enhanced PA identified the AREEs, and the Remedial Investigation identified the samples taken at each site and the analyses from the samples. The Risk Assessment identified the risk associated with each site on the basis of 12 different exposure pathways and 5 different future land use scenarios. The risk identified in the Risk column in Table 4-1 is any risk above 1×10^{-4} for any exposure pathway within any of the land use scenarios. Table 4-2 provides a detailed summary of all the sites identified in the Enhanced PA; information is provided on contaminants of concern, recommendations of the Enhanced PA, whether the site was investigated under the Remedial Investigation, and the Remedial Investigation recommendations.

Operable Unit A: Explosive Washout Lagoons and Associated Buildings:

Site 4, Explosive Washout Lagoons: Site 4 consists of two adjacent lagoons located in the central portion of UMDA. These lagoons are gravel-lined and are constructed of native soil consisting of sands and gravels. They were formerly used to collect and infiltrate liquid wastes from the removal of explosives from obsolete bombs, an operation that was carried out in the explosive washout plant (Site 5). According to UMDA employees, both lagoons have been rebuilt over the years.

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index ≥ 1 or Carcinogenic [c]: Risk $\geq 1 \times 10^{-4}$) |
|--|--|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Operable Unit A: Explosive Washout Lagoons and Associated Buildings | | | | | | | |
| 4 | Explosive Washout Lagoons | (98,56) | 43D | ✓ | ✓ | | c: yes n: no |
| 5 | Explosive Washout Plant | (100,56) | 43D | ✓ | ✓ | | c: no n: no |
| 36 | Building 493 - Paint Sludge Discharge Area | (102,60) | 43D | ✓ | ✓ | | c: no n: yes |
| 47 | Boiler/Laundry Effluent Discharge Site Building 486 | (104,57) | 43D | ✓ | ✓ | | c: no n: yes |
| 52 | Coyote Coulee Discharge Gullies | (98,54) | 43D | ✓ | ✓ | | c: no n: no |
| 57 | Building 493 - Brass Cleaning, Operations Areas | (102,58) | 43D | ✓ | ✓ | | c: no n: no |
| Operable Unit B: Ammunition Disposal Area | | | | | | | |
| 7 | Anline Pit | (21,72) | 21D | ✓ | ✓ | | No contaminants of concern identified |
| 8 | Acid Pit | (21,71) | 21D | ✓ | ✓ | | No contaminants of concern identified |
| 13 | Smoke Canister Disposal Area | (9,89) | 21D | ✓ | ✓ | | c: no n: no |
| 14 | Flare and Fuse Disposal Area/Bird Cage Burn Area | (6,85) | 21D | ✓ | ✓ | | c: no n: no |
| 15 | 2,4,6-trinitrotoluene Sludge Burial and Burn Area | (11,98) | 18D | ✓ | ✓ | | c: yes c: yes |
| 16 | Open Detonation Pits | (15,80) | 21D | ✓ | ✓ | | c: no n: yes |
| 17 | Aboveground Open Detonation | (11,92) | 21D | ✓ | ✓ | | c: no n: yes |
| 18 | Dunnage Pits | (19,99) | 14D | ✓ | ✓ | | c: no n: no |
| 19 | Open Burning Trenches/Pads | (16,106) | 14D | ✓ | ✓ | | c: yes n: yes |
| 21 | Missile Fuel Storage Areas | (14,62) | 21D | ✓ | ✓ | | Not calculated |
| | Pesticide Pits | (16,74) | 21D | ✓ | ✓ | | c: yes n: yes |

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

Continued

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index ≥ 1 or Carcinogenic [c]: Risk $\geq 1 \times 10^{-4}$) |
|--|---|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Operable Unit B: Ammunition Disposal Area (Continued) | | | | | | | |
| 32 | Open Burning Trays Location I | (15,94) | 14D | ✓ | ✓ | | c: no n: no |
| 32 | Open Burning Trays Location II | (15,94) | 14D | ✓ | ✓ | | c: no n: yes |
| 38 | Pit Field Area | (7,83) | 21D | ✓ | ✓ | | c: no n: no |
| 41 | GB/VX Decontamination Solution Burial Areas | (12,106) | 14D | ✓ | ✓ | | c: Not calculated n: no |
| 55 | Trench/Burn Field | (9,96) | 18D | ✓ | ✓ | | Not calculated |
| 56 | Munitions Crate Burn Area | (21,95) | 19D | ✓ | ✓ | | c: no n: no |
| 57 | Former Pit Area Location I, II, III | (7,89) (16,68) | 21D | ✓ | ✓ | | c: Not calculated n: no |
| 58 | Borrow/Burn/ Disposal Area | (30,115) | 7D | ✓ | ✓ | | Not calculated |
| 59 | GB/VX Decontamination Solution Disposal Areas | (18,91) (22,88) | 14D 25D | | ✓ | | Not calculated |
| 60 | Active Firing Ranges | (8,63) | 37D | ✓ | ✓ | | c: Not calculated n: no |
| Operable Unit C: Inactive Landfills | | | | | | | |
| 12 | Inactive Landfill | (93,25) | 73D | ✓ | ✓ | | c: no n: no |
| 50 | Railroad Landfill Areas | (85,18) | 74D | ✓ | ✓ | | c: no n: no |
| 82 | Former Gravel Pit/Disposal Location | (59,59) | 41D | ✓ | ✓ | | c: no n: no |
| Operable Unit D: Remote Munitions Disassembly Area/GB Bomb Disassembly Area | | | | | | | |
| 9 | Remote Munitions Disassembly/GB Bomb Disassembly Area | (47,101) | 16D | ✓ | ✓ | | c: no n: no |

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

Continued

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index ≥ 1 or Carcinogenic [c]: Risk $\geq 1 \times 10^{-4}$) |
|--|---|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Operable Unit E: Deactivation Furnace and Southwestern Warehouse Area | | | | | | | |
| 1 | Deactivation Furnace | (17,40) | 50D | ✓ | ✓ | | c: no n: yes |
| 3 | Hazardous Waste Storage Facility Building 203 | (14,54) | 21D | ✓ | ✓ | | c: no n: no |
| 25 | Metal Ore Piles Location I | (18,43) | 50D | ✓ | ✓ | | c: Not calculated n: yes |
| 26 | Metal Ingot Stockpiles | (17,49) | 50D | ✓ | ✓ | | c: no n: no |
| 34 | Paint Sprays and Shot Blast Area | (37,58) (32,57) | 44D 46D | ✓ | ✓ | | c: no n: no |
| 5 | Malathion Storage Leak Area | (27,51) | 52D | ✓ | ✓ | | c: no n: no |
| 37 | Building 131 Paint Sludge Discharge Area | (24,39) | 53D | ✓ | ✓ | | c: no n: yes |
| 44 | Road Oil Application/ Disposal Sites Location I | (104,17) | 82D | ✓ | ✓ | | c: no n: no |
| 46 | Railcar Unloading Area | (26,36) | 53D | ✓ | ✓ | | c: no n: no |
| 68 | Building 129, Former unsymmetrical dimethyl hydrazine Operations Area | (25,40) | 53D | | | ✓ | Not calculated |
| 69 | Skunk Works Area | (31,36) | 62D | | | ✓ | Not calculated |
| 80 | Disposal Pit and Graded Areas | (15,56) | 21D | ✓ | ✓ | | c: no n: no |
| 81 | Former Raw Materials Storage Location I and II | (24,30) (62,35) | 71D 65D | ✓ | ✓ | | No contaminants of concern identified |

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

Continued

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index ≥ 1 or Carcinogenic [c]: Risk $\geq 1 \times 10^{-4}$) |
|--|--|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Operable Unit F: Sewage Treatment Plant and Vicinity | | | | | | | |
| 6 | Sewage Treatment Plant | (83,23) | 74D | ✓ | ✓ | | c: no n: no |
| 30 | Stormwater Discharge Area | (80,21) | 74D | ✓ | ✓ | | c: no n: no |
| 48 | Pipe Discharge Area | (77,22) | 74D | ✓ | ✓ | | c: no n: no |
| 64 | Leaking Railcare Shipment Inspection Area | (86,23) | 74D | | | | c: no n: no |
| Operable Unit G: Active Landfill | | | | | | | |
| 11 | Active Landfill | (138,93) | 20D | ✓ | ✓ | | c: no n: no |
| Operable Unit H: Defense Reutilization Marketing Office and Other Administration Area Sites | | | | | | | |
| 22 | Defense Reutilization and Marketing Office Area | (103,19) | 82D | ✓ | ✓ | | c: no n: yes |
| 27 | Pesticide Storage Building | (105,22) | 82D | ✓ | ✓ | | c: no n: no |
| 44 | Road Oil Application/ Disposal Location II | (15,42) | 50D | ✓ | ✓ | | c: no n: no |
| 70 | Wood Preserving Solution Spill Area | (103,27) | 81D | | | ✓ | Not calculated |
| 75 | Battery Acid Collection Sumps (Building 31) | (108,24) | 82D | | | ✓ | n: no c: no |
| 76 | Photographic Chemical Solution Disposal Area (Building 54) | (108,18) | 82D | | | ✓ | Not calculated |
| 77 | Paint Storage and Disposal Area (Building 30A) | (105,25) | 82D | | | ✓ | Not calculated |
| 83 | Leaking Drum Storage Area | Not Mapped | Not Mapped | | | ✓ | Not calculated |

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

Continued

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index ≥ 1 or Carcinogenic [c]: Risk $\geq 1 \times 10^{-4}$) |
|--|--|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Operable Unit I: Chemical Agent/Agent Decontamination Sites Outside Ammunition Demolition Activity Area | | | | | | | |
| 10 | Former Agent H Storage Area | (87,112) (93,112) | 9D 10D | ✓ | ✓ | | c: not calculated n: no |
| 33 | Gravel Pit Disposal Area | (91,35) | 66D | ✓ | ✓ | | c: no n: no |
| 49 | Drill and Transfer Site | (82,110) | 10D | ✓ | ✓ | | c: no n: no |
| Operable Unit J: Miscellaneous Umatilla Sites | | | | | | | |
| 2 | Storage Igloos | Multiple | Multiple | ✓ | ✓ | | Not calculated |
| 25 | Metal Ore Piles Location II | (90,91) | 10D | ✓ | ✓ | | c: no n: yes |
| 29 | Septic Tanks | Multiple | Multiple | ✓ | ✓ | | c: no n: no |
| 39 | QA Function Range | (136,127) | 2D | ✓ | ✓ | | c: Not calculated n: no |
| 45 | Building 612 and 617 Boiler Discharge Areas | (54,110) | 12D | ✓ | ✓ | | c: no n: no |
| 53 | Building 433 Collection Sump/ Cistern and Disposal Area | (111,41) | 43D | ✓ | ✓ | | c: no n: no |
| 81 | Former Raw Materials Storage Location II | (62,35) | 65D | ✓ | ✓ | | c: Not calculated n: no |
| 61 | Open Paint Spray Areas | (127,74) | 31D | | | ✓ | Not calculated |
| 65 | Waste Paint and Solvent Disposal Area (Building 608) | (56,110) | 12D | | | ✓ | c: no n: no |
| 66 | Brass, Copper, and Steel Storage Areas | (64,34) | 65D | | | ✓ | Not calculated |
| 79 | Malathion Spray Area | (147,73) | 33D | | | ✓ | Not calculated |
| Operable Unit K: PCB Transformer Locations | | | | | | | |
| - | PCB Transformers Locations | Multiple | Multiple | | | ✓ | c: no n: Not calculated |

TABLE 4-1
PREVIOUSLY IDENTIFIED AREAS REQUIRING ENVIRONMENTAL EVALUATION IN BRAC
PROPERTY, UMATILLA DEPOT ACTIVITY, OREGON

Continued

| AREE #/ Site # | Name | Coordinate Location (x,y) (Figure 5-1) | Parcel Number | Source of Information | | | Risk (Noncarcinogenic [n]: Hazard Index \geq 1 or Carcinogenic [c]: Risk \geq 1×10^{-4}) |
|-------------------|---|---|------------------|---|--|---|--|
| | | | | Enhanced Preliminary Assessment (April 1990) | Remedial Investigation (August 1992) | Supplementary Remedial Investigation (September 1993) | |
| Others | | | | | | | |
| 20 | Open Burning Areas | Not Mapped | Not Mapped | | | | Not calculated |
| 28 | Missile Fuel Burning Areas | (28,71) | 34D | | | | Not calculated |
| 40 | Jeep Storage Area | Not Mapped | Not Mapped | ✓ | | | Not calculated |
| 42 | Former underground storage tank Locations | Multiple | Multiple | ✓ | Investigated in UST Survey | | Not calculated |
| 43 | Former Gas Station | (110,60) | 42D | | Investigated in UST Survey | | Not calculated |
| 51 | Large Open Storage Areas | (107,68) | 30D | ✓ | | | Not calculated |
| 54 | Possible Disposal Pit Location | Not Mapped | Not Mapped | | | | Not calculate |
| 63 | Pier 386 Chemical Solution Disposal Area | (76,99) | 10D | | | | Not calculated |
| 71 | Possible Fire Training Pit | (112,19) | 82D | | | | Not calculated |
| 72 | Vehicle Storage Area | Not Mapped | Not Mapped | ✓ | Investigated in UST Survey | | Not calculated |
| 73 | Diesel Fuel Spill Location | (106,23) | 82D | ✓ | Investigated in UST Survey | | Not calculated |
| 74 | Building 23 Oil/Fuel Transfer Station | (104,22) | 82D | ✓ | ✓ | | Not calculated |
| 78 | Building 608 and 614 Heat Exchange Systems | (37,111) | 8D | ✓ | | | Not calculated |

Key: CERFA = Community Environmental Response Facilitation Act
 AREE = Areas Requiring Environmental Evaluation
 PCB = Polychlorinated Biphenyl
 UST = Underground Storage Tank
 Yes = Human health carcinogenic or noncarcinogenic risk were found to exist above 1×10^{-4} and 1, respectively.
 No = Human health carcinogenic or noncarcinogenic risk not found to exist above 1×10^{-4} and 1, respectively.

Note: Figure 5-1 is located at the end of Section 5.

During the Remedial Investigation, 48 soil samples from 8 borings and 3 surface soil samples were collected and analyzed for explosives and nitrate/nitrite. Two surface water and 2 sludge samples from concrete sump located near the bottom of the flume were collected, and 34 groundwater samples were collected from 17 existing groundwater wells and 17 new groundwater wells.

The 11 surface soil samples (8 surface samples from the boring locations) and the other 3 surface soil samples were found to contain 5 explosives and nitrate/nitrite above background levels. Seven explosives and nitrate/nitrite were detected in the subsurface soils. Ten of the 17 inorganics and nitrate/nitrite were selected as contaminants of concern in the groundwater samples, because detected concentrations exceeded background levels or background levels were not available. Nine explosives were detected in the groundwater samples. Additional sampling was recommended.

Site 5 (the Explosive Washout Plant - Building 489) consists of two adjoining parts--a large single-story room where washout operations occurred, and a two-story flaker addition where explosives sludges were separated, dried, and pelletized. Explosives washout operations conducted from the mid-1950s to the mid-1960s involved the removal of explosives from munitions, bombs, and projectiles by means of water or steam-cleaning techniques. Some of the munitions demilitarized at this location included 500- and 750-pound Composition B bombs and 90-mm projectiles. The washout operations included sizable amounts of Composition B and 2,4,6-trinitrotoluene and reportedly some tritonal.

During the Remedial Investigation, 16 shallow soil samples were collected from the soil surrounding the building. These samples were analyzed for explosives and nitrate/nitrite. Ten wipe samples were collected from the interior of the building. Three of the 16 soil samples contained no explosives; 13 samples contained explosives with the highest concentration being 9,900 micrograms per gram ($\mu\text{g/g}$) of 2,4,6-trinitrotoluene. The 10 wipe samples showed low residual levels of explosives in the building. Additional soil sampling was recommended.

Site 36 (Building 493) located to the north of the explosive washout plant (Site 5), was formerly used for spray-painting operations in wet spray booths. Former UMDA employees reported that the booths had drains that collected the paint sludges and solvents. In addition, a brass-cleaning solution (known as Wedac) containing cyanide was reportedly disposed of in this drainage system. The drains were connected to an underground piping network that discharged to the coulee to the northwest of Building 493. Two pipes that are suspected to be the discharge pipes for the liquid wastes were identified during site investigations.

During Remedial Investigation activities at this site, five samples were collected from shallow hand-auger borings. Eight of the 18 USEPA's target analyte list (TAL) metals were detected in concentrations that exceeded the comparison criteria. No cyanide, explosives, or USEPA's Target Compound List (TCL) volatile organic analytes were detected in any of the samples. Low concentrations of one TCL base-neutral acid and 13 tentatively identified compounds were also detected in one sample. A slightly elevated level of nitrate/nitrite was also detected. Evaluation of remedial alternatives was recommended.

Site 47 (the Boiler/Laundry Effluent Discharge Site) is located in the central portion of UMDA. To the south of the boiler plant building is a metal trough that was formerly used to discharge effluent during blowdown of the plant boilers. This discharge effluent typically contains metal fragments and other materials--commonly referred to as scale--from the interior of the boilers. Clothes contaminated with explosives were washed in Building 486, and effluent from the laundry operations was discharged into the metal trough. The trough discharged into a metal sump that contains baffles. From the metal trough, the effluent was then discharged into a rock-lined pit.

During Remedial Investigation activities at the site, 22 soil samples were collected from 3 hand-auger and 2 deep borings. Groundwater samples were collected from four monitoring wells. One surface water and two sludge samples were collected from two sumps.

One or two tentatively identified compounds were detected in all soil samples, at low combined concentrations. Several inorganics were detected in the soil samples, but all were below background levels. Mercury was detected above background concentrations in all samples collected at the surface and at two feet. Groundwater samples indicated low levels of two explosives, which may not be site-related. No TCL volatile organic analytes, base-neutral acids, or pesticides/PCBs were detected in any groundwater samples. Two tentatively identified compounds were detected in one well. The soils in the sumps at this site were found to be heavily contaminated with inorganics and moderately contaminated with pesticides. Additional soil sampling and sump and pipeline cleanout were recommended.

Site 52 (Coyote Coulee Discharge Gullies) consists of three erosional gullies that were observed along Coyote Coulee near the explosive washout plant (Building 489) in the historic aerial photographs and during investigative site visits. The flume leading to the washout lagoons and the discharge areas/gullies associated with Building 493 are described separately in the descriptions for Sites 4 and 36. The three discharge gullies for Site 52 range from a few inches to a few feet in depth, are of varying width, and generally exhibit stressed vegetation.

Low levels of two explosives were detected in two shallow soil samples, and several base-neutral acid tentatively identified compounds were detected at low combined concentrations. No TCL volatile organic analytes or nitrates/nitrites were detected, and only TAL inorganics below background levels were detected. Evaluation of remedial alternatives was recommended.

Site 67 (Building 493, Brass Cleaning Operations Area) was the place in which brass shells were cleaned with the Wedac solution in the mid-to-late 1960s. The Wedac solution contained cyanide, according to former UMDA employees. The cleaning operations reportedly took place in Building 493 in the mid-1960s, and the waste liquid was disposed of in the paint spray booth drains (see Site 36 description above). In the late 1960s, the cleaning operations were reportedly conducted outside on concrete pads south of Building 493. The waste solutions were probably spilled in the work area and reportedly were disposed of on the site soils or in the Ammunition Demolition Activity area in the acid pit (Site 8).

During Remedial Investigation activities at the site, soil and groundwater samples were collected. Only two metals were detected above background in soil (silver and calcium). The metals

detected in groundwater appear to be at naturally occurring levels or there is an offsite source. Neither explosives nor nitrates/nitrites exceeding the criterion were detected. No further action was recommended for this site.

Operable Unit B: Ammunition Demolition Activity Area: It is unlikely that unexploded ordnance occurs at all of the sites in the Ammunition Demolition Activity Area, due to the uncertainty of past operations in the area.

Site 7 (Aniline Pit) located within the Ammunition Demolition Activity area, was reportedly used to dispose of aniline, a missile fuel component. From aerial photography, the dates of use were from the early 1950s to the mid-1970s.

The Remedial Investigation field program consisted of the collection and chemical analysis of four soil samples from one test pit. Only 12 of the 23 metals tested for were detected, but they were at concentrations below background levels. Aniline, nitrobenzene, and N,N-dimethylaniline, all components of missile fuel, were never encountered in the sampling results. Therefore, no further action was recommended.

Site 8 (Acid Pit) is a small limestone-lined pit located just south of the Aniline Pit. This pit was used from 1955 to 1962 for the disposal of red fuming nitric acid, a missile and rocket fuel oxidizer. Approximately 300 to 400 20-gallon barrels of acid were reportedly disposed of in the pit.

As part of the Remedial Investigation activities, five soil samples were collected within the pit. All samples were analyzed for cyanide and one sample was analyzed for volatile organic analytes. Cyanide was not detected in any samples, and chloroform was detected at low concentrations in the one sample.

Groundwater samples were also taken at this site. Several TAL metals were detected. Four metals were detected at concentrations similar to all other groundwater samples at UMDA. Evaluation of remedial action alternatives was recommended.

Site 13 (Smoke Canister Disposal Area) is located in the central portion of the Ammunition Demolition Activity grounds and was used to dispose of burned debris from the UMDA canister burning operations that took place at Site 39, QA Function Range. There is a shallow grass-covered trench. Historical aerial photographs indicate the presence of a trench at this site prior to 1970.

During Remedial Investigation activities at the site, 19 soil and 2 groundwater samples were collected. Seventeen TAL metals and cyanide were detected in soil; 13 of the metals were present at levels in exceedance of their comparison criteria in the soil samples. One base-neutral acid tentatively identified compound was identified in one groundwater sample at a level well below the comparison criterion. From the analyses results, groundwater does not appear to be affected by the migration of contaminants in the surface soil at the site.

Site 14 (Flare and Fuse Disposal Area/Bird Cage Burn Area) is located in the west-central portion of the Ammunition Demolition Activity grounds and was used to dispose of burned residue from the UMDA flare and fuse burning operation. However, no burning was reported to have taken place here.

Twelve soil samples were collected from two test pits. Five metals were detected at levels above background. Explosives, volatile organic analytes, and base-neutral acids were not detected. Nitrate/nitrite was detected in 11 of 13 samples; however, concentrations were above background in only two samples. Evaluation of remedial action alternatives was recommended for Site 14.

Site 15 (2,4,6-trinitrotoluene Sludge Burial and Burn Area) is located in the north-central portion of the Ammunition Demolition Activity grounds. Previous investigations at this site concluded that 2,4,6-trinitrotoluene-containing sludges from the washout plant may have been dumped and burned here. However, former UMDA employees indicated that paint spray operation sludges, shot blast machine wastes, and deactivation furnace ash and residue were more likely to have been disposed of or burned at this site. At least two mounds of reddish-brown, dried sludge material--one of which appeared to have been dumped from a trash barrel--and a variety of burned debris, including charred wood and metal fragments, were observed at this site. In addition, a pile of scrap metal was present at the site but has since been removed to the Defense Reutilization and Marketing Office Area (Site 22).

During the Remedial Investigation, 14 soil samples were collected from 2 test pits in the soil mounds and from 2 shallow borings near the large pile of scrap metal on the south side of the site. Two rounds of groundwater samples were collected. Soil samples from both of the mounds contained elevated concentrations of metals and generally low concentrations of a few organics. Moderate levels of 2,4,6-trinitrotoluene, HMX, and Royal Demolition Explosive were detected in samples from the other boring. Manganese was the only notable constituent detected in the groundwater samples. Evaluation of remedial action alternatives was recommended for Site 15.

Site 16 (Open Detonation Pits), located in the central portion of the Ammunition Demolition Activity grounds, will remain in use until September 1994. This site is included in the State of Oregon Air Pollutant Discharge Permit. The site consists of a series of shallow detonation pits that are enclosed by a firebreak and dirt road. Historical aerial photographs indicate that more than 40 pits formerly existed in the site area, but some have been graded over. Areas to the south and west of the firebreak once contained pits and were used for site activities in the past, but are currently inactive.

During the field Remedial Investigation, 45 soil samples were collected from 10 test pits, and groundwater samples were collected. Elevated levels of metals and some explosives were detected in some of the test pits, mainly in the currently active area. No explosives or TCL volatile organic analytes or base-neutral acids were detected in any of the groundwater samples. Manganese and vanadium were detected at levels exceeding comparison criteria. Evaluation of remedial action alternatives was recommended in the Remedial Investigation report. Unexploded ordnance was found during field cleaning conducted prior to the sampling collection.

Site 17 (Aboveground Open Detonation Area), used for the detonation of decontaminated M55 rockets and M23 land mines, is located in the central portion of the Ammunition Demolition Activity grounds. Munitions were placed in a horizontal steel tube running through the center of a gravel-filled metal bin. Blast shields constructed of steel plate were positioned over each end of the steel tube before detonation of the munitions. A mound of fine-grained soil, possibly containing some ash material, was present just east of the bin.

In addition, two aboveground storage tanks are present at this site. An aboveground yellow tank, labeled #4, is located at the northwest edge of the site. This tank was reportedly used to store sludges and liquids from the washout plant. The second tank, a large, black aboveground storage tank located on a platform just north of the metal bin, apparently held cooling water.

As part of the Remedial Investigation, four surface soil samples were collected from the area around the concrete pad that contains the gravel-filled bin. Levels of nitrate/nitrite did not exceed background concentrations. Most explosives were detected at low levels, except for a moderate level of Royal Demolition Explosive in one sample. Eleven metals exceeded background levels in one or more samples. These contaminants are likely due to metal and explosives residue that were not destroyed during detonation. Evaluation of remedial action alternatives was recommended for Site 17.

Site 18 (Dunnage Pits), located in the north-central portion of the Ammunition Demolition Activity grounds, were reportedly used to dispose of and burn dunnage and possibly liquid wastes, such as waste solvents, oils, paint strippers, and sludges from the washout plant operations. The two currently visible pits are separated by a gravel road.

The Remedial Investigation study for Site 18 included a limited magnetometer survey to help locate test pits within former dunnage pits that are now graded over; collection of 28 soil samples from six test pits; and collection of two rounds of groundwater samples from two newly installed wells (1 upgradient, 1 downgradient).

Results from chemical analyses indicated that at the two existing dunnage pits, only soil samples from the eastern pit contained notable levels of contamination--primarily from metals, and mainly confined to the surface. Soil samples collected from two of the three test pits constructed in the former pit area were determined to be heavily contaminated with metals. Some contamination by pesticides and PCBs was also detected. Groundwater from the two wells contained elevated levels of only manganese, with slightly higher concentrations detected in the downgradient well. Additional study was recommended for Site 18.

Site 19 (Open Burning Trenches/Pads), located in the north-central portion of the Ammunition Demolition Activity area, consist of 10 former burn trenches and a burn field area. The trenches were reportedly used to burn a variety of debris and waste, including ordnance wastes. Retirees indicated that a yellow tank, labeled #4, was used at this site to store sludge/water containing explosives contaminants from the washout plant. This material was later discharged into the three northernmost trenches that were used to burn 2,4,6-trinitrotoluene sludge.

Six test pits were constructed in the burn field area during the Remedial Investigation. Four test pits were dug in the burn trenches. Chemical analysis results from soil samples collected in these areas indicated high levels of metals and explosives contamination, mainly in the shallow soil of the burn trenches. Only occasional metals contamination was detected in samples from the burn field area. Samples from monitoring wells near the site indicated low contamination from a few metals, though it cannot be conclusively attributed to Site 19. Additional study was recommended for Site 19.

Site 21 (Missile Fuel Storage Areas) consists of three existing sheds and one former shed previously used to store missile fuel components. They are located in the south-central portion of the Ammunition Demolition Activity grounds and were first used in the early 1950s.

Nine soil samples from five test pits were collected for the Remedial Investigation. Results indicate no explosive contamination and a few isolated low concentrations of nitrate/nitrite, volatile organic analyte tentatively identified compound, and base-neutral acid tentatively identified compounds. Past practices do not appear to have affected the soil, and therefore no further action was recommended.

Site 31 (Pesticide Pits) are located in the south-central portion of the Ammunition Demolition Activity grounds. According to some former UMDA employees, these pits were used during the 1950s or 1960s to burn or dispose of pesticide solutions; other contended that pesticide solutions were never disposed of at UMDA, but were shipped offsite to other Army depots for disposal. Some of the retirees also speculated that these pits may have been used as detonation pits or for the open burning of flares. In other UMDA reports, an area to the north of the pits has been identified as the torpedo burn area. However, no information about the activities in this area was provided by current or former UMDA employees.

At present, 10 open pits are located in an east-west trending row in the site area. In addition, at least two former pits are located at the site. The field investigation for Site 31 included collection of 35 soil samples (4 surface soil and 31 subsurface samples) from 8 test pits from existing pits or graded areas that once contained pits, 1 sludge sample from 1 of the existing pits, and collection of groundwater samples. Results of analyses indicated limited soil contamination by metals, nitrate/nitrite, explosives, base-neutral acids, and pesticides. It does not appear that groundwater has been affected by past operations at Site 31, except for possibly nitrate/nitrite (which was detected once at an elevated concentration). Evaluation of remedial action alternatives was recommended for Site 31.

Site 32 (Open Burning Trays) has two locations where open burning trays are used to burn powder propellant from disassembled munitions. The start date of burning operations is unknown; it is currently in use, and open burning operations at these two locations will cease after September 1994. These two locations are included in the State of Oregon Air Pollutant Discharge Permit. The results from eight soil samples taken during the Remedial Investigation suggested that high levels of metals and low levels of nitrate/nitrite and 2,4-DNT may be of concern at this site. No further action was recommended.

Site 38 (Pit Field Area) is located in the central portion of the Ammunition Demolition Activity grounds. Nearly 100 pits were observed in this area during the Enhanced PA site visit. Interviews with current and former employees did not reveal any specific use for the pits; however, they may have been used to explode and dispose of old or faulty ordnance.

As a part of the Remedial Investigation activities, field cleaning occurred to ensure safe sampling, and unexploded ordnance was discovered. Fifty soil samples were collected from 10 test pits constructed in existing pits. In addition, three monitoring wells were sampled. Results of the chemical analyses indicated limited soil contamination by metals and explosives. No site-related contamination was detected in the groundwater. Evaluation of remedial action alternatives was recommended for this site.

Site 41 (GB/VX Decontamination Solution Burial Areas) is located at the northern end of the Ammunition Demolition Activity grounds. The solution was reportedly used to decontaminate a leaking bomb, which arrived at UMDA in the late 1960s, and was dumped along the northern fence of the Ammunition Demolition Activity grounds. Other UMDA retirees noted that no decontamination solutions would have been disposed of so close to the installation boundary, but the solution may have been disposed of farther to the south.

As part of the Remedial Investigation field program, 10 soil samples were collected from 2 test pits. Specific analysis for chemical agents were conducted before these samples left the site. No chemical agents were found in the samples. Groundwater samples were collected from a newly installed well and two existing wells. Results of the chemical analyses of soil samples collected at Site 41 indicated slightly elevated concentrations of antimony. Elevated levels of several metals were detected in soil at depths of 5 feet. Vanadium and manganese detected in groundwater were determined to be naturally occurring. Evaluation of remedial action alternatives was recommended for Site 41.

Site 55 (Trench/Burn Field) is located in the north-central portion of the Ammunition Demolition Activity grounds. The site was first noted in 1950 aerial photographs as what appeared to be several rows of burn-trenches. Interviews with current or former UMDA employees did not reveal any specifics regarding the operations that took place at this site. The eastern boundary of Site 55 is overlapped by the western edge of Site 15 (2,4,6-trinitrotoluene Sludge Burial and Burn Area). It is not possible to distinguish whether potential contamination in the area of overlap is due to past activities at Site 55 or at Site 15.

As part of the Remedial Investigation field activities, 13 soil samples (including one duplicate) were collected from 3 test pits constructed in Site 55. In addition, two rounds of groundwater samples were collected. Chemical analysis results indicated low levels of a few metals and some explosives in the soil samples, and no site-related groundwater contamination. Evaluation of remedial action alternatives was recommended for Site 55.

Site 56 (Munitions Crate Burn Area) is located in the north-central portion of the Ammunition Demolition Activity grounds. The area was reportedly used to burn empty wooden crates from munitions. Historic aerial photographs indicate that the site was active prior to 1950 through 1965.

Six soil samples from three test pits were collected at Site 56 and submitted for chemical analysis as part of the Remedial Investigation; no monitoring wells were installed. The chemical analysis results indicated very limited metals contamination in the shallow soil in two of the three test pits. No other contaminants are considered to be a concern. The Remedial Investigation recommended evaluation of remedial action alternatives for Site 56.

Site 57 (Former Pit Area Locations) consist of three areas, designated as Locations I, II, and III, in the north-central, central, and south-central portions of the Ammunition Demolition Activity grounds. All of the areas were active or appeared to be disturbed in aerial photos prior to 1950. Pits were active in the two northern areas from prior to 1950 through the mid-1960s; the area in the south-central Ammunition Demolition Activity was disturbed in 1950 but appeared to be most active in 1956 and 1958. Interviews with former employees did not reveal the activities that took place at these locations.

For the Remedial Investigation field activities, 80 soil samples were collected from 17 test pits in the 3 old pit fields. Two rounds of groundwater samples were collected from 5 newly installed wells and 3 wells from Sites 15 and 38. At Location I, results of the sampling program indicated limited metals contamination in the soil at two of the four test pits. Groundwater samples did not contain any contaminants of concern. Limited metals contamination also was found in shallow soil in one of five test pits at Location II. Levels of contaminants in groundwater at Location II were below levels of concern. From 41 soil samples collected from 8 test pits, it was determined that Location III contained limited metals contamination. Groundwater data for Location III indicate that soil contamination has not affected the groundwater. Evaluation of remedial action alternatives was recommended.

Site 58 (Borrow/Burn/Disposal Area), located in the northeast corner of the Ammunition Demolition Activity grounds, appears as a bare, light-toned area in aerial photographs taken in 1950 to 1968. Exact site activities are not known.

Four soil samples were collected from two test pits constructed during the Remedial Investigation. Only one low level of an unknown base-neutral acid tentatively identified compound was detected in one sample. Results indicated no contaminants of potential concern and no evidence of past burning and dumping at this site; therefore, no further action was recommended.

Site 59 (GB/VX Decontamination Solution Disposal Areas) consists of two areas that are located in the central portion of the Ammunition Demolition Activity grounds. Former employees identified areas where GB/VX decontamination solutions were disposed of on the bare soil in the early 1960s.

Five soil samples and two rounds of groundwater samples from two wells indicated no concentrations of isopropyl methyl phosphonate or ethyl methyl phosphonate in any samples. Before being sent offsite, the samples were screened, and it was determined that no chemical agents were present in any of the soil samples. Two other smaller landfills, associated with the site were investigated during the Supplementary Remedial Investigation. These data indicate that there is no concern related to contamination; therefore, no further action was recommended.

Site 60 (Active Firing Range) is located near the southwest corner of the Ammunition Demolition Activity grounds and includes an active rifle, machine gun, and grenade range. The firing range has been used by the National Guard since the early 1980s.

Three shallow soil samples indicated only TAL metals at levels below background; therefore, no further action was recommended.

Operable Unit C: Inactive Landfills:

Site 12 (Inactive Landfills) includes five inactive landfills located in the southern portion of UMDA, to the west of the administration area. The two larger landfills (the northern and southern landfills) were reportedly used for the disposal of garbage and building materials. The third landfill area (the western inactive drums site) is substantially smaller than the other two and contains drums that are exposed at the surface. It was reported that none of the three landfills have been active for over 15 years.

As part of the Remedial Investigation field activities, 24 shallow soil samples were collected from 8 test pits constructed at Site 12. In addition, 2 rounds of samples were collected from 11 wells. The results of the chemical analyses indicate low- to moderately-elevated concentrations of metals in several soil samples, and low concentrations of nitrate/nitrite, several pesticides, and one PCB in a limited number of samples. The results of the chemical analyses of the groundwater samples did not indicate water table contamination by landfilling activities. Vanadium levels slightly exceeding the comparison criterion were reported for all groundwater samples, but they are considered to be representative of natural or offsite sources. Evaluation of remedial action alternatives was recommended for Site 12.

Site 12 (Inactive Landfills; Suspected Transite Piles in the Northern Inactive Landfill Area) contains two disposal sites discovered in 1990. Both are located near the center of the northern inactive landfill, one just north of the center and one just south. The northern area contains some charred debris that appears to include asbestos-containing transite siding. The southern area also contains asbestos siding but no charred material.

As part of a supplementary Remedial Investigation, four soil samples and two samples of the suspect asbestos-containing material taken from the two locations were analyzed for asbestos. These indicated the presence of asbestos in the transite siding material but no asbestos in the soil samples. No further action beyond removal of the asbestos-containing material was recommended.

Site 50 (Railroad Landfill Areas) is located in the south-central portion of UMDA, approximately 500 feet south and southeast of the sewage treatment plant. The site consists of two areas: one north of the railroad tracks, with dimensions of approximately 30 by 800 feet, and another located along the southern boundary of the railroad classification yard. Both of these landfills consist of topographic depressions on either side of the slightly elevated grade of the railroad spur; these depressions were gradually filled in with debris.

Six shallow soil samples were collected from two test pits constructed at Site 50 during the Remedial Investigation field investigation. In addition, two rounds of groundwater samples were

collected from three wells near the site. The results of the chemical analyses indicated low concentrations of oil and grease in soil samples. Low levels of oil and grease and vanadium were reported for the groundwater samples. Additional study was recommended for Site 50.

Site 82 (Former Gravel Pit/Disposal Location) is located in the west-central portion of UMDA, south of Igloo Block I. Aerial photographs first identified this site in 1949 as a gravel pit, and in 1990 it was noted to possess sparse vegetation, disturbed surface soil, and pieces of what appeared to be asbestos-containing material in two areas of the former pit floor.

One debris sample and four shallow soil samples were collected at Site 82. Results of the chemical analyses indicated very low concentrations of chloroform and asbestos in 30 to 40 percent of the debris sample. It was recommended that the asbestos be removed and disposed of properly.

Operable Unit D: Remote Munitions Disassembly Area/GB Bomb Disassembly Area:

Site 9 (Remote Munitions Disassembly/GB Bomb Disassembly Area) is located in the northwest portion of UMDA, to the east of the Ammunition Demolition Activity grounds. This area was used primarily to drain and disassemble conventional munitions, which included very large bombs. The site may also have been used to disassemble bombs containing agents GB or VX, including a leaking chemical bomb that arrived at UMDA in the late 1960s.

As part of the Remedial Investigation field program, six shallow soil samples were collected. Specific analyses for chemical agents were conducted before the samples were shipped offsite for further analyses. No chemical agents were discovered. Results of the chemical analyses indicated generally low concentrations of several metals in soil samples collected at Site 9. Low concentrations of two explosives were detected at the location containing the highest levels of metals. Evaluation of remedial action alternatives was recommended for the site.

Operable Unit E: Deactivation Furnace and Southwestern Warehouse Area:

Site 1 (Deactivation Furnace) located in the southwest corner of the depot property in Building 206, was used to incinerate small munitions up to 50 caliber. These munitions included cartridges, boosters, primers, mines, fuses, simulators, charges, and detonators. Other operations in the furnace facility included the melting, separation, and recovery of brass, lead, and steel from arms carrying less than 40 grams of explosives. Off gases from the furnace were directed to a cyclone and subsequently to a baghouse.

The Remedial Investigation study included 17 surface soil samples and 5 near-surface soil samples located along three radii originating from the baghouse stack, 24 surface and shallow subsurface soil samples from 8 hand-auger borings located adjacent to the gravel lot, 12 subsurface soil samples from 6 borings in the lot, and 3 soil samples from a boring in the collection sump. Results from chemical analyses indicated mainly that the surface soil is heavily contaminated with a number of metals, particularly antimony, lead, silver, and zinc. No explosives or other organics were detected at levels of concern. No further action was recommended for Site 1.

Site 3 (Building 203, Hazardous Waste Storage Facility) hazardous wastes are stored in a small bermed and fenced area within the building. Typical wastes are baghouse dust, battery acid, used oil, and PCB transformers. In the early 1970s, drums of Agent Orange leaked and were stored here.

Four surface soil samples were collected north of Building 203 during the Remedial Investigation. No contaminants were detected and no further action was recommended.

Site 25 (Metal Ore Piles Location I) consists of six former or current piles of metallurgical-grade chromium located in two general areas of UMDA (Location I and Location II). Location I (Site 25) consists of one existing ore pile and one former pile located along the railroad tracks to the southeast of Building 200. The one existing ore pile at Location I is southeast of Building 200, in the southwest portion of UMDA. The pile is located to the east of the railroad tracks, is 3 to 4 feet high, and occupies an area of 6,000 to 7,000 square feet. Historical aerial photographs indicate that another pile, approximately 500 feet long by 25 feet wide, was located in this area to the west of the railroad tracks during the mid-1960s.

Six shallow soil samples were collected at Site 25 as part of the Remedial Investigation field activities. Results indicated limited low levels of thallium. No further action was recommended for the site.

Site 26 (Metal Ingot Stockpiles) is located directly east of Building 200, in the southwest portion of UMDA. The piles consist of a number of lead, aluminum, and zinc ingots stacked about 6 feet high and occupying an area of 30,000 to 40,000 square feet. The ingots rest directly on the underlying gravelly soil. Ingot stockpiles were present from approximately 1965 to 1988, according to historical aerial photographs.

Six shallow soil samples were collected at Site 26 as part of the Remedial Investigation field program. Chemical results indicated elevated levels of lead and zinc in some of the samples. Evaluation of remedial action alternatives was recommended for the site. The ingot stockpiles have been moved inside one of the warehouses.

Site 34 (Paint Spray and Shot Blast Areas) referred to as Areas 2000 and 2001 by UMDA personnel, is located in the southwest portion of the depot. Both areas were used temporarily for painting and shot blasting activities. The painting operation involved the outdoor spraying of munitions with an air compressor. No waste collection units were used for this operation, and the excess paint spray is assumed to have been deposited on the gravel and soil. For the shot blast operation, a portable sandblasting machine was used to remove old paint from munitions. According to former UMDA employees, the sand, paint particles, and metal pieces collected in the machine were dumped on the soil near these sites. Area 2001 was also used to transfer propellant tablets from large burlap bags to smaller containers and bombs.

The Remedial Investigation field program for Site 34 included the collection of eight shallow soil samples from Areas 2000 and 2001 composited into two samples, and one sample from the pile of suspected shot blast residue material near Area 2001. Low levels of metals were detected in

Area 2001 and the residue pile, and low levels of organics at Area 2001. In the Remedial Investigation, it was recommended that remedial action alternatives be evaluated.

Site 35 (Malathion Storage Leak Area) is located to the north of Building 108, in the southwest corner of UMDA. Former UMDA employees reported that a shipment of leaking 5-gallon (malathion) insecticide containers was received by railcar in the late 1970s. The containers were removed from the railcar and reportedly stored on the gravel to the north of Building 108. The disposal of the insecticide was not determined.

Nine soil samples and one duplicate were collected from three borings installed at Site 35 during the Remedial Investigation. Chemical analysis results indicate low levels of several TCL pesticides at two of the locations. The Remedial Investigation recommended evaluation of remedial action alternatives for the site.

Site 37 (Building 131 Paint Sludge Discharge Area) is located in the southwest portion of UMDA, in a depression just west of Building 131. This site covers an area of approximately 20,000 square feet.

During the Remedial Investigation, four shallow soil samples were collected at Site 37. Limited elevated levels of metals and generally low levels of base-neutral acids were detected in some of the samples. The Remedial Investigation recommended evaluation of remedial action alternatives for this site.

Site 44 (Road Oil Application/Disposal Site, Location I) includes two areas. Location I is south of Sixth Street, in the southwestern warehouse area; Location II is in the administration area, in the south-central portion of UMDA. Because of their locations in different parts of UMDA, Location I is included in Operable Unit E, whereas Location II is included in Operable Unit H.

At Location I, a spill of hardened road oil material, occupying approximately 100 square feet, was noted south of Sixth Street during the 1989 site reconnaissance. During the field investigation in September 1990, the tarlike blackish sand composing the first 1.5 feet of surface soil was noted to have a petroleum odor.

During the Remedial Investigation, one shallow soil sample was collected from Site 44 Location I. Results from the chemical analyses indicated relatively low levels of several volatile organic analyte and base-neutral acid tentatively identified compounds and a highly elevated level of oil and grease. Evaluation of remedial action alternatives was recommended in the Remedial Investigation for the site.

Site 46 (Railcar Unloading Area) is located in the southwest portion of UMDA. Historic aerial photographs indicate that coal or ore was stored here from 1949 through the late 1950s or early 1960s. Former UMDA employees noted that this area was also used as an unloading area for small arms cartridges in the late 1960s and early 1970s.

During the Remedial Investigation field program, three shallow soil samples were collected at Site 46. Results from the chemical analyses indicated that the soil is contaminated with several

metals and a number of base-neutral acids. This site was recommended for evaluation of remedial action alternatives.

Site 68 (Building 129, Former Unsymmetrical Dimethyl Hydrazine Operations Area) was used to conduct stability tests of unsymmetrical dimethyl hydrazine and red fuming nitric acid (which were used for rocket fuel) between 1963 and 1968, according to former UMDA employees. Waste material from the testing operation reportedly drained through lead-lined pipes into a lime pit formerly located west of Building 129.

As part of the Supplementary Remedial Investigation, five soil samples were collected from a test pit within the suspected unsymmetrical dimethyl hydrazine and red fuming nitric acid disposal area. All the samples were analyzed for nitrate/nitrite, pH, and lead. Lead was detected at levels below background. No nitrate/nitrite was detected, and pH was slightly above neutral. Therefore, no further action was recommended.

Site 69 (Skunk Works Area) included hydrochloric acid baths in the mid- to late-1940s; they had a foul skunk-like odor. Copper and brass cartridges were cleaned in these baths for reuse. This site was also used for similar purposes for one summer during the 1960s, when a solution containing cyanide (Wedac) was used to clean brass and copper cartridges. It was reported that waste acid and Wedac solutions were either dumped on the ground at the site or burned in the Ammunition Demolition Activity grounds.

Supplementary Remedial Investigation sampling activities included collection of subsurface soils from 3 soil borings and a well boring, collection of 12 near-surface soils composited into 3 samples, and installation of a well. Soil samples contained no detectable levels of cyanide. A number of TAL metals were detected in one or more samples; only silver exceeded comparison criteria. Nitrate/nitrite was detected in several samples well below comparison criteria. Ten TAL metals were detected in two groundwater samples from the new well. Selenium was detected at 105 micrograms per liter ($\mu\text{g/L}$) during one round of sampling and was not detected during the second round. Vanadium was elevated with respect to comparison criteria, but it may be present in natural levels or may have an offsite source. The Remedial Investigation concluded that site activities appeared not to have affected groundwater.

Site 80 (Disposal Pit and Graded Areas) is located in the southwestern portion of the UMDA, northeast of Building 202 and south of Eleventh Street. Reviews of historical aerial photographs indicate that this site was active for a period of at least 15 years prior to 1965.

Four soil samples were collected from a test pit constructed during the Remedial Investigation. No constituents detected were considered to be of concern; therefore, no further action was recommended.

Site 81 (Former Raw Materials Storage Location I) is located along the railroad tracks in the southwestern warehouse area. Historical aerial photographs indicated three separate storage piles, consisting of coal or ore in the 1950s.

Four surface soil samples were collected during the field Remedial Investigation. TAL metals at levels below background were the only analytes detected. Because no contaminants of concern were detected, no further action was recommended.

Site 81 (Raw Materials Storage Location II), located near the southeastern corner of igloo Block H, was identified in a review of aerial photographs that showed the storage of raw materials during the 1940s and 1950s.

Two shallow soil samples collected during the Remedial Investigation showed no detectable levels of any TAL metals during the analysis. Based on these results, it appears that there is no contamination at this site; therefore, no further action was recommended.

Operable Unit F: Sewage Treatment Plant and Vicinity:

Site 6 (Sewage Treatment Plant) is located in the south-central portion of UMDA. Domestic wastewater generated in the administration area flows by gravity to the treatment plant, which consists of a Parshall flume, two Imhoff tanks, a sludge drying bed, and a tile field percolation system that drains to a sand/gravel filter.

During the Remedial Investigation field program, 18 subsurface soil samples were collected from five 10-foot soil borings in the tile field, and 4 subsurface soil samples were collected from a test pit in the sludge drying bed. Results of the chemical analyses of the soil indicated the presence of elevated levels of silver and very low levels of several organic constituents near the surface of the tile field. Additionally, concentrations exceeding comparison criteria for several metals, nitrate/nitrite, and low levels of DDT were reported for soil samples collected at the sludge drying bed. Evaluation of remedial action alternatives was recommended for the site in the Remedial Investigation.

Site 30 (Stormwater Discharge Area) which collects stormwater runoff from the UMDA administration area, is located in the south-central portion of UMDA. Stormwater discharges from a 12-inch pipe into a small ravine composed of natural surface materials such as gravel and rocks, and travels west.

Two shallow soil samples were collected along the surface water channel of the Stormwater Discharge Area. Results of the soil chemical analyses near the discharge pipe indicated elevated levels of several metals and low concentrations of several volatile organic analyte and base-neutral acid tentatively identified compounds, pesticides, and oil and grease. The downstream sample revealed generally lower levels of the same metals, pesticides, and oil and grease, but was free of detectable levels of volatile organic analytes and base-neutral acids. Additional study was recommended for Site 30 in the Remedial Investigation.

Site 48 (Pipe Discharge Area) consists of a pipe approximately 8 inches in diameter and 15 feet long located in the south-central portion of UMDA. It discharges into a long ravine approximately 10 to 15 feet deep. The discharge pipe is reportedly connected to a large Imhoff tank that is no longer in use associated with the sewage treatment plant.

For the Remedial Investigation field program, three shallow soil samples were collected along the surface water channel leading from the Imhoff tank discharge pipe. Results of the chemical analyses of soil adjacent to the discharge pipe indicate elevated levels of several metals. Low to moderate concentrations of nitrate/nitrite and several base-neutral acid tentatively identified compounds, pesticides, and pesticide tentatively identified compounds were also reported in soil near the discharge pipe. Downstream samples also contained elevated levels of metals and some pesticides. In the Remedial Investigation, additional study was recommended for Site 48.

Site 64 (Leaking Rail Car Shipment Inspection Area) identified in the Supplementary Remedial Investigation, is a rail spur area that extends into an artificial ravine. From the 1940s through the early 1950s, shipments arriving by railcar that were leaking or suspected of leaking were taken to the end of the rail spur (into the ravine) and inspected. Rail cars may have been washed and rinsed in this location. Paints, solvents, explosives, pesticides, petroleum products, and possibly chemical munitions may have been spilled at this site.

Remedial Investigation sampling included collection of 10 shallow soil samples from the ravine at the end of the rail spur. These samples were analyzed for chemical agents before being shipped offsite. No chemical agents were found. Results indicated only slightly elevated levels of a few TAL metals and low concentrations of TPH in several samples. Several low concentrations of volatile organic analyte and base-neutral acid tentatively identified compounds were detected. The risk assessment concluded that multipathway carcinogenic risks are below the National Contingency Plan risk range of 1×10^{-4} to 1×10^{-6} , and multipathway noncarcinogenic hazards are less than 1 for the future residential land use scenario.

Operable Unit G: Active Landfill:

Site 11 (Active Landfill) has been used since 1968 as a disposal area for wood, garbage, building materials, and dried sludge from the sewage treatment plant. Originally a gravel pit, the landfill covers approximately 5 acres in the northeastern portion of UMDA, between igloo Blocks D and E.

As part of the Remedial Investigation field program, six wells were installed near Site 11. Two rounds of groundwater samples were collected from four existing wells and the six new wells. Results of the chemical analyses indicated potential site-related groundwater contamination by low levels of base-neutral acid tentatively identified compounds. The analytical results also indicated the presence of elevated concentrations of vanadium, nitrate/nitrite, and possibly selenium in areas upgradient and downgradient of the active landfill. Additional study was recommended for the site in the Remedial Investigation.

Operable Unit H: Defense Reutilization and Marketing Office and Other Administration Area Sites:

Site 22 (Defense Reutilization and Marketing Office Area) occupies approximately 1 acre in the southwestern portion of the administration area. The site is surrounded by a chainlink fence and is used to store scrap or salvage material (such as scrap metals, wooden crates and pallets, and waste oil) prior to removal and disposal offsite. Rifles, empty projectiles, and brass and lead bullets, as well as scrap metals, vehicles, furniture, etc., are also stored in this area prior to

their sale. Leaking transformers containing PCB-contaminated oil were reportedly stored on bare ground under a metal shelter located at the southwest end of the site.

During the Remedial Investigation field program, 11 shallow soil samples were collected near suspected areas of contamination at Site 22. Results of the chemical analyses indicated moderately- to highly-elevated levels of a number of TAL metals. Low levels of pesticides were also reported for several samples. Moderate to high concentrations of TPHs and moderate levels of base-neutral acid tentatively identified compounds were detected at this site, but they were limited to only a few sample locations. In the Remedial Investigation report, additional study was recommended for the site.

Site 27 (Building 8, Pesticide Storage Building) is located in the central portion of the UMDA administration area. Building 8 is constructed of concrete block walls, a concrete floor, and a wooden roof. The quantity of pesticides stored in this building is generally limited. The pesticides are stored in two bermed rooms with concrete floors. UMDA records indicate that paints and solvents were also stored in this building in the 1970s.

As part of the Remedial Investigation field program, two shallow soil samples were collected west of the Pesticide Storage Building, and other shallow soil samples were collected at two locations next to the pesticide storage tank. Results of the chemical analyses indicated elevated levels of one metal and low concentrations of three base-neutral acids and one pesticide in one or both samples. In the Remedial Investigation for this site, evaluation of remedial action alternatives was recommended.

Site 44 (Road Oil Application/Disposal Location II) includes two areas south of Sixth Street, in the southwestern warehouse area; and Location II, in the administration area, in the south-central portion of UMDA. Because of their locations in different parts of UMDA, Location I is included in Operable Unit E, and Location II is included in Operable Unit H.

Historic aerial photographs and former UMDA employees indicated that road oil was disposed of at Location II from the mid-1950s through the mid-1960s to limit dust emissions in this portion of the administration area. In addition, UMDA retirees indicated that the southern portion of the area was used in the 1950s and 1960s to transfer road oil from commercial supply trucks to Army supply vehicles. Retirees indicated that spills may have occurred in the area. Furthermore, the eastern section of this area was reportedly used in the late 1940s to store drums of road oil and tar and to change the oil in Army vehicles. The waste oil was reportedly drained directly onto the soil.

Seven shallow soil samples were collected near suspected areas of contamination at Site 44, Location II, during the Remedial Investigation. Results of the chemical analyses indicated moderate to high levels of oil and grease in all but one sampled location. Generally, low levels of a limited number of base-neutral acid tentatively identified compounds were also reported for several samples. Additional study was recommended for the site in the Remedial Investigation report.

Site 70 (Wood Preserving Solution Spill Area) is located in the northwest corner of the administration area. Former UMDA employees reported that several hundred gallons of wood preserving solution, most likely PCP, were dumped or spilled on the soil in the 1960s and 1970s.

The Remedial Investigation field program for Site 70 included the collection of 16 soil samples, which were composited into 4 samples, and the collection of 2 soil samples from east of the scrap pile at the east end of the site. Groundwater samples were also collected from newly installed wells. Results of the chemical analyses indicated that the soil is not significantly contaminated in the areas directly beneath the scrap piles. TPHs were detected at low concentrations in both monitoring wells during the first round of sampling only. No further action was recommended for the site.

Site 75 (Battery Acid Collection Sumps - Building 31) was identified in the Supplementary Remedial Investigation. The sump, located along the northeast exterior of Building 31, was used to collect battery acid during the 1950s and 1960s. The concrete sump was used to collect acid from a drain in the maintenance area of Building 31. The sump may also have contained water discharged by the boiler in Building 31. NW

A second sump, located near the northwest corner of the building, may also have collected battery acid in the late 1970s and 1980s. Battery operations took place on a covered concrete apron that extended from the southwest corner of Building 31. A drain in the apron channeled flow to the sump via underground piping. This sump was constructed of brick with a concrete flow. Lime was used to neutralize acid. The sump, which has been out of service since approximately 1989, was filled with rock and gravel in approximately 1991; its precise location is not apparent. NE

Remedial Investigation sampling included collection of 5 soil samples from a test pit dug next to the out-of-service sump, collection of 4 soil samples from 2 test pits dug near the existing sump, and collection of 1 surface water and 1 sediment sample from the existing sump. Lead concentrations in the 5 soils collected from the test pit next to the out-of-service sump were all less than the comparison criteria; no other TAL metals were detected. At the other two test pits, 17 TAL metals were detected; all concentrations were less than their comparison criteria. No sulfate was detected in any soil samples.

Surface water and sediment from the existing sump contained a number of TAL metals. Most notable was the elevated silver and zinc in the sediment sample, exceeding the comparison criteria by almost an order of magnitude. The risk assessment concluded that multipathway carcinogenic risks are below the National Contingency Plan risk range of 1×10^{-4} to 1×10^{-6} , and multipathway noncarcinogenic hazards are less than 1 for the future residential land use scenarios.

Site 76 (Photographic Chemical Solution Disposal Area - Building 54) was reportedly used as a darkroom and film developing laboratory from the mid-1940s to the early 1950s. It was reported that 50 to 100 gallons of film-developing solutions were disposed on the soil to the west

of the building during this period. In 1990, green and white stained soil was noted along the south end of the building; it appeared to be dried paint.

Three soil sampling locations were selected for the Supplementary Remedial Investigation. Seventeen TAL metals were detected, but concentrations were less than their respective comparison criteria. No cyanide was detected. Because no contaminants of concern were identified, the site was not considered for risk calculation.

Site 77 (Paint Storage and Disposal Area - Building 30A) is a shed with a bare soil foundation. Paints, solvents, oils, and antifreeze solutions have been stored in this area over the past 40 to 50 years. The area within and surrounding Building 30A was frequently used to dispose of waste paint and solvent solutions, and waste photographic chemical developing solutions. Paint-stained soils were noted in 1990, and stained soils appear on air photos from as early as 1949.

The Supplementary Remedial Investigation included collection of four near-surface soil samples, installation of one monitoring well, and collection of subsurface soil samples during well drilling. In the near-surface soil samples, 18 TAL metals were detected; only silver exceeded comparison criteria. In the subsurface soil samples, only mercury, nickel, and silver exceeded comparison criteria. This site was not considered for risk calculations because no chemicals of concern were identified.

Site 83 (Leaking Drum Storage Area) is a fenced yard west of Building 39 and south of Building 23 that was reportedly used to store drums of methyl isobutyl ketone, a degreasing solvent. This solvent replaced methyl ethyl ketone, which may have also been stored at this site. It was reported that the drums occasionally leaked. The site has been in use since 1949.

Supplementary Remedial Investigation sampling included collection of 10 soil samples from two 10-foot soil borings for volatile organic analyte analysis. The only TCL volatile organic analyte detected was acetone; it was detected at a low concentration in only one sample. There were three low concentrations of one volatile organic analyte tentatively identified compound. Because of the low concentrations, it was concluded that neither the shallow nor subsurface soil has been affected by the leaking drums. Thus, the site was not considered for risk evaluations.

Operable Unit I: Chemical Agent/Agent Decontamination Sites Outside Ammunition Demolition Activity Area:

Site 10 (Former Agent H Storage Area) is a strip of land approximately 125 feet wide by 4,000 feet long, is located in the north-central portion of UMDA. Historic aerial photographs taken between 1950 and 1968 indicate that five open storage pads once occupied this site, but the photographs show no evidence of significant storage. Storage of containers in these five areas and on the old storage pad to the west was noted on historic aerial photographs from the 1970s.

The results of the on-site screening and chemical analyses performed on soil samples collected at Site 10 indicated no thiodiglycol contamination at the storage pads or potential burial site location, and only very low levels of antimony at the latter area.

Six composited shallow soil samples, S10-1 through S10-6, were collected from the six areas used to store containers of chemical Agent H at Site 10. Additionally, five soil samples were collected from one test pit (S10-7) south of the pads and in an area suspected of receiving wastes from Agent H spill decontamination operations. The results of on-site screening indicate that chemical Agents H, GB, and VX were not present in any of the soil samples. The Agent H degradation product thiodiglycol was not detected during the laboratory analyses of soil collected from the storage pads, the only analyses performed on these six soil samples (S10-1 through S10-6). No thiodiglycol, isopropyl methyl phosphonate, or ethyl methyl phosphonate were detected in samples from test pit S10-7. Only slightly elevated levels of antimony were detected in soil from S10-7. A trace level of one TCL volatile organic analyte was reported for the sample from test pit S10-7; no other TCL volatile organic analytes were detected. No explosives or TCL base-neutral acids were detected in the test pit samples. Evaluation of remedial action alternatives was recommended for the site as a result of the Remedial Investigation.

Site 33 (Gravel Pit Disposal Area) located to the east of Block F, in the south-central portion of UMDA, was reported by former UMDA employees to be the site of GB/VX decontamination solution disposal in 1960.

Analysis of five soil samples collected during the Remedial Investigation indicated no presence of chemical breakdown products; hence, no further action was recommended.

Site 49 (Drill and Transfer Site) was located to the north of Block K and was used in 1984 as part of a program to dispose of leaking chemical munitions. One spill occurred directly on the unprotected ground surface.

Results from chemical analyses performed on soil samples collected during the Remedial Investigation indicated no detectable levels of the chemical Agents GB/VX and H, nor the degradation products isopropyl methyl phosphonate, ethyl methyl , and thiodiglycol.

Operable Unit J: Miscellaneous Umatilla Sites:

Site 2 (Storage Igloos) consists of 1,001 earth-covered, reinforced-concrete storage igloos located throughout UMDA for the storage of various munitions and wastes. The igloos are semicircular arches, with floor dimensions of approximately 26.5 feet (width) by 81 or 61 feet (length) and a maximum ceiling height of approximately 13 feet. Each igloo has gutters along the interior base of each sidewall. The gutters, which gently slope toward the front of the igloo, are connected to 4-inch pipes that extend through the front wall for drainage. These outside drains empty either to site soils or to small sheet-metal drip pans. Air vents are located at the back wall and on the door. Igloos containing chemical munitions/wastes reportedly have chemical resistant, epoxy-coated floors.

No samples were collected as part of the Remedial Investigation field effort. The site was evaluated for potential contamination based on surrounding sites. Additional study was recommended in the Remedial Investigation for the site.

Site 25 (Metal Ore Piles Location II) consists of one existing pile and one former pile identified in a historical aerial photograph. They are located along the railroad tracks to the southeast of

Building 200. The existing pile has been present since the end of World War II. The former pile was noted only in 1965 photographs.

During the Remedial Investigation, the results from the analysis of six surface soil samples indicated very limited low levels of thallium. Because the levels are only slightly above background and may not be of concern, no further action was recommended.

Site 29 (Septic Tanks) consists of 23 known septic tanks located throughout UMDA. Two of the tanks, referred to as Imhoff tanks, are associated with the sewage treatment plant (Site 6). According to information provided by UMDA personnel, review of available written data, and visual observation of several tank sites by Dames & Moore, only 15 of the tanks appear to be active. With the exception of the two large tanks associated with the sewage treatment plant, the tanks range in size/capacity from 450 to 6,000 gallons per day.

The field investigation for the Remedial Investigation included the collection of 4 surface water samples (one from each Septic Tank S420, S622, S655-1, and S655-2), collection of 3 sludge samples (one from S655-2 and two from tank S420), and collection of 51 soil samples from test pits completed in the tile drain fields associated with 6 tanks. All of these samples were analyzed for chemical agents before they were shipped offsite for further analyses. No chemical agents were found. Contamination in the tanks has not impacted the surrounding soil, based on results of the chemical analyses. The site was recommended for evaluation of remedial action alternatives in the Remedial Investigation.

Site 39 (QA Function Range) is located in the northeast corner of UMDA and occupies approximately 600 acres. The range was formerly used for two separate operations. The central portion of the site served as a rifle and pistol range. The southern portion of the site, east of the coulee, served as a QA testing area for flares, photoflash grenades, and mines. It is possible that some unexploded ordnance (i.e., grenades, mines, and small arms that were intended to explode, failed to detonate) may remain in this area.

For the Remedial Investigation, nine shallow soil samples and one duplicate were collected from Site 39. Results from the analyses indicated limited metals contamination in several areas that were tested. The Remedial Investigation report recommended that remedial action alternatives be evaluated for this site.

Site 45 (Building 612 and Building 617 Boiler Discharge Areas) are boiler house buildings located in the northwestern portion of the depot. Both of these buildings discharge boiler blowdown effluent onto nearby soil. For the Remedial Investigation, two shallow soil samples were collected at Site 45, one from each of the boiler discharge areas at Buildings 612 and 617. Results indicated limited metals contamination at both areas. The Remedial Investigation report recommended that remedial action alternatives be evaluated for this site.

Site 53 (Building 433, Collection Sump/Cistern and Disposal Area) is located approximately 40 feet south of Building 433, across the railroad tracks. The sump/cistern is constructed of concrete. The location is characterized by a 4-inch diameter stand pipe in the center of a 3-foot by 3-foot concrete pad. Building 433 is an oil-fired boiler house, with restrooms located on

either end. It was not determined if the sump is the septic tank for the building or if it served another purpose. A possible 10-foot by 20-foot disposal area is approximately 40 feet north of Building 433.

One soil and one surface water sample were collected at Site 53 for the Remedial Investigation sampling program. Results from the chemical analyses indicated base-neutral acid and oil and grease contamination in the soil at the disposal area, and possibly limited low levels of metals in the sump/cistern. The site was recommended for evaluation of remedial action alternatives in the Remedial Investigation report.

Site 61 (Open Paint Spray Areas) consists of several locations in the northeast portion of the installation that may have been used for outdoor spray painting during the 1950s and 1960s. The Remedial Investigation focused on the areas around three igloos (C-1188, C-1189, and C-1190) along Road F. Spray painting reportedly took place between these igloos. There is a small (approximately 10 feet diameter, 3 feet deep) pit along the southwest corner of C-1188.

Remedial Investigation sampling included collection of 5 shallow soils, including one sample from the pit. Sixteen of the 17 TAL metals were detected in each soil sample in concentrations less than their respective comparison criteria. Silver was detected in levels exceeding comparison criteria in two samples. Di-n-butyl phthalate was detected at a very low concentration. Five base-neutral acid tentatively identified compounds were detected at low concentrations in one sample. The Supplementary Remedial Investigation concluded that sampled areas do not appear to have been affected by spray painting activities. The site was not considered for risk evaluation.

Site 62 (Paint and Paint Solvent Disposal Area) was where small quantities (less than 5 gallons) of waste paints and solvents were reportedly disposed of in the 1950s. There is a topographic depression next to a concrete pad along Coyote Coulee; there is a second depression at the southern end of the site. Some rusted cans and residual waste paint were noted at the site in 1990.

Five soil samples were collected from a test pit located in the southern disposal area. At the southern disposal area, 22 TAL metals were detected at one or more depths. Only silver and zinc concentrations exceeded comparison criteria. Because contamination at the site is expected to result from spills on the surface, and silver and zinc concentrations were less than the cancer risk level or the comparison criteria in samples at shallower depths, the silver and zinc levels in samples at depth are not considered to be of concern in the Remedial Investigation. Two base-neutral acids bis(2-ethylhexyl)phthalate and di-n-butyl phthalate, were detected at low concentrations. Three base-neutral acid tentatively identified compounds (DDD, DDE, and DDT) were detected at low concentrations.

One near-surface soil sample was collected from the topographic depression next to the concrete pad. Seventeen of the 22 TAL metals were detected. Only copper and zinc exceeded their respective comparison criteria. No TCL volatile organic analytes or base-neutral acids were detected.

The risk assessment for Site 62 concluded that multipathway carcinogenic risks are below National Contingency Plan risk range of 1×10^{-4} to 1×10^{-6} , and multipathway noncarcinogenic hazards are less than 1 for the future residential land use scenario.

Site 65 (Waste Paint and Solvent Disposal Area - Building 608) is the place where waste paint and solvent solutions from painting operations were disposed of (on the soil covering the bunker storage areas north of Building 608) from the early 1950s through the early 1980s. Paint residue was visible on the soil in 1990. Historic aerial photos and the 1990 site visit revealed that a spill or disposal area is also located in a wide trench south of Building 608. This material was reported to be plaster of paris remnants from cleaning of the building floors.

The Remedial Investigation included collection of four near-surface soil samples. Eighteen of 22 TAL metals were detected in one or more soil samples. Only mercury and zinc concentrations exceeded their respective comparison criteria. No TCL volatile organic analytes or base-neutral acids were detected. The risk assessment concluded that multipathway carcinogenic risks are below National Contingency Plan risk range of 1×10^{-4} to 1×10^{-6} , and multipathway noncarcinogenic hazards are less than 1 for the future residential land use scenario.

Site 66 (Brass, Copper, and Steel Storage Area) is an area in which brass, copper, and steel were stored on the soil from the 1950s through the 1970s. Storage locations were identified from aerial photographs and former employees.

The Remedial Investigation included collection of three shallow soil samples. Seventeen of 22 TAL metals were detected in one or more soil samples; analyses were performed because of the elevated silver levels, and silver was not detected during the Toxicity Characteristic Leaching Procedure (TCLP) analysis. Only barium was detected during toxicity analysis, and the concentration was much less than the TCLP regulatory level. Risks and hazards were not calculated because there were no contaminants of concern.

Site 79 (Malathion Spray Area) denotes an area of soil and vegetation that was sprayed with the insecticide malathion in 1980. According to personnel and historic aerial photos, a significant amount of vegetation was killed (approximately 100 yards by 5 to 10 yards in area).

A 1981 U.S. Army Environmental Hygiene Agency memo indicated that one soil sample and one vegetation sample were collected from the area. The vegetation had 9,200 $\mu\text{g/g}$ of malathion and the soil had 10,500 $\mu\text{g/g}$ of malathion. A soil sample collected 40 days later had 134 $\mu\text{g/g}$ of malathion.

The Remedial Investigation sampling included collection of 16 soil samples composited into 4 samples. The samples did not have detectable concentrations of pesticides or malathion. The pesticide degraded over time. No risks or hazards were calculated for the site since contaminants of concern were not identified.

Site 81 (Former Raw Materials Storage Location II) comprises two general locations in different parts of UMDA. Location I is along the railroad tracks in the southwestern warehouse area, and Location II is near the southeast corner of igloo Block H. Location I is included in Operable

Unit E, and Location II is included in Operable Unit J. Historic aerial photographs indicate that raw materials were stored in this area in the 1940s and 1950s.

The Remedial Investigation field program included the collection of two shallow soil samples from Site 81 Location II. Chemical analysis results indicated that all TAL metals were below the comparison criteria. No further action was recommended for this site.

Operable Unit K: PCB Transformer Locations: There are 239 transformers at UMDA, of which an estimated 173 are currently in use. The remaining 66 transformers have been removed and disposed of offsite in accordance with regulatory requirements. Of these 66 transformers, 50 have been replaced by new units containing less than 50 parts per million PCBs. All 239 of the transformers at UMDA were sampled and tested for PCBs in June 1989.

There were transformers with a PCB concentration greater than 10 parts per million. The Remedial Investigation field study was limited to current and former locations of these transformers. Note that new transformers used to replace former transformers are not addressed in this study. Although dielectric fluids in replacement transformers may exceed the 10-parts per million criterion, the transformers are new and in good condition with no reported leaks. Additionally, UMDA personnel annually inspect all transformers for leakage and implement corrective actions if necessary.

Installation records indicate that 61 of the 79 transformers at UMDA with a PCB concentration greater than 10 parts per million were reported to have "leaked" (defined as a transformer with oily residue on the external surface). Depot records also indicate that 130 of the total 239 transformers at UMDA have reported leaks. There are no reports of leaks or spills of fluid on the soil at these sites. All transformers with PCB concentrations greater than 50 parts per million have been removed and disposed of offsite according to regulatory requirements. Transformers removed from service and temporarily stored in Building 203 have also been disposed of offsite; according to regulatory requirements, replacement transformers must contain PCB concentrations of less than 50 parts per million.

The Remedial Investigation field study for the transformers included a 1992 field survey to observe transformer locations and to assist in developing the sampling plan. This was followed by soil sampling at each transformer site where leakage is known or suspected to have occurred. Wipe samples were also collected from selected stained transformer pads and wooden frames.

Because no soil staining was observed below or around the pole-, frame-, and pad-mounted locations, 63 four-point composite soil samples were collected at all transformer locations, to include the 61 locations where leaks were reported. Twenty-five wipe samples were collected from six concrete pads, three building floors, four wooden planks, and four underground vaults where transformers may have leaked dielectric fluids with more than 10 parts per million PCBs.

Results of the soil analyses indicate that only one PCB (PCB 1260) was detected in 5 of the 63 soil samples; however, all detected concentrations (ranging from 0.087 to 3.8 $\mu\text{g/g}$) were well below the comparison criteria of 10 $\mu\text{g/g}$. Only PCB 1260 was detected in wipe samples. Seven of the 25 wipe samples contained PCB 1260, and all concentrations (0.004 to 0.079

micrograms per square meter ($\mu\text{g}/\text{cm}^2$) were below the comparison criteria of $0.1 \mu\text{g}/\text{cm}^2$. The Remedial Investigation concluded that PCBs were not considered to be a concern at any sampled transformer locations.

The risk assessment did not assess risk for 73 of the 79 transformer locations because there were no chemicals of concern. At PCB transformer locations 162, 163, 164, 196, 197, and 198, the dermal absorption of contaminants in soil, incidental ingestion of soil, and consumption of crops present risks in excess of 1×10^{-6} . The multipathway risk for each site is $7\text{E}-06$ due to the presence of PCB 1260 in site soil. A hazard index was not calculated because a reference dose is not available for PCB 1260.

The sites listed below were identified in the Enhanced PA and were either not recommended for further investigation, or further investigation was recommended but later determined to be unnecessary.

Site 2 (Storage Igloos) is not suspected to have caused any significant environmental degradation. According to the Enhanced PA, the igloos are inspected regularly and are well managed. Consequently, there are no contaminants of concern for this site, and no additional investigations or studies were recommended. During the Remedial Investigation, no field investigations or sampling was conducted at this site. However, evaluations of other similar sites indicated that Site 2 may be contaminated due to the application of road oil. Potential contaminants of concern may be oil, grease, base-neutral acids, and metals. Follow-up investigations (including some sampling) has been conducted in this area, and the results are presented in the Remedial Investigation Addendum.

The Site 20 (Open Burning Areas) were not precisely identified in the Enhanced PA. These sites may actually be the burning areas already associated with other Ammunition Demolition Activity sites. Since the exact locations could not be identified, no sampling occurred during the Remedial Investigation activities. These areas are no longer considered AREEs.

Site 23 and Site 24 are identified in the RCRA Facility Investigation as Building 5 waste oil tank and Building 10 waste oil tank, respectively. They are included in the Underground Storage Tank Survey as Underground Storage Tank 44 and Underground Storage Tank 55, respectively.

Site 28 (Missile Fuel Burning Areas) was not sampled during the Remedial Investigation because no groundwater contamination was expected. (Nitrate concentrations are low in the surface soils.) Minimal contamination migration is expected as aniline and hydrazine fuels are not present in the environment.

Site 40 (Jeep Storage Area) is a large parking lot. Minor leaks of fuel and oil may have occurred. No significant releases are known or suspected. The Enhanced PA did not recommend additional investigation for Site 40.

Site 42 (Former Underground Storage Tank Locations; Administration Area) was identified as a site in the Enhanced PA. Because leaks or spills may have occurred, further study was

recommended. These tanks, however, were not included in the Remedial Investigation but were further investigated as a separate underground storage tank program.

Site 43 (Former Gas Station/Possible Underground Storage Tank Locations; Central UMDA Grounds) was identified as a site in the Enhanced PA. Because leaks or spills may have occurred, further study was recommended. These tanks, however, were not included in the Remedial Investigation but were further investigated as a separate underground storage tank program.

Site 51 (Large Open Storage Areas in the Vicinity of Coyote Coulee) identified in the Enhanced PA, had no reported known or suspected releases. Historic aerial photos did not reveal any significant signs of disposal activities or environmental degradation. The Enhanced PA did not recommend additional investigation for this site.

Site 54 (Possible Disposal Pit Location) is very small, existed for a very brief period, and would be impossible to locate; hence, no sampling occurred at this site during the Remedial Investigation.

Site 63 (Pier 386 Chemical Solution Disposal Area) may have been used for disposal of agent test solutions onto site soils. The Enhanced PA recommended additional investigation. During the preparation of the Supplementary Remedial Investigation Work Plan, this site was reevaluated, and it was determined that no additional investigation was necessary.

Site 71 (Possible Fire Training Pit) may have included dumping of flammable liquid solutions into earthen pits that were used for fire training exercises. The Enhanced PA recommended additional investigation. During the preparation of the Supplementary Remedial Investigation Work Plan, this site was reevaluated and it was determined that no additional investigation was necessary.

Site 72 (Vehicle Storage Area) was essentially a large parking lot. Minor leaks of fuel, oil, or battery acid from vehicles stored on unprotected soils may have occurred. The Enhanced PA did not recommend additional investigation for the site. No significant releases are known or suspected.

Site 73 (Diesel Fuel Spill Location) is the place where a spill of approximately 800 gallons of diesel fuel occurred in the mid-1950s. The site is now covered with a concrete pad. Additional investigation was recommended by the Enhanced PA. This site has been studied further within the Interim Draft Underground Storage Tank Report, which recommended additional sample collection and analyses. At this time the sample results are not available.

Site 74 (Building 23 Oil/Fuel Transfer Station) is where fuel and oil spills onto unprotected soils south of Building 23 were suspected. The Enhanced PA recommended further investigation. This site has been studied further within the Interim Draft Underground Storage Tank Report, which recommended additional sample collection and analyses. At this time the sample results are not available.

Site 78 (Building 608 and 614 Heat Exchange Systems) is where the piping system for the heat exchange may have leaked. Previous sampling of the solutions in Building 614's piping detected volatile organic analytes, base-neutral acids, reactive sulfide, and heavy metals. The Enhanced PA recommended additional information. During the preparation of the Supplementary Remedial Investigation Work Plan, this site was reevaluated and it was determined that no additional investigation was necessary.

4.1.2 Existing Areas Requiring Environmental Evaluation That Have Expanded in Size

A number of areas requiring environmental evaluation identified in the Enhanced PA and Remedial Investigation/Supplemental Remedial Investigation have changed in size. Areas requiring environmental evaluation or sites where remediation has occurred are discussed in Section 4.5. Areas requiring environmental evaluation that have expanded in size are described in this part.

Historical Aerial Photograph Sites, AX1-AX74: These sites were identified during the Enhanced PA using historical aerial photographs. On the basis of interviews with former UMDA employees, these sites were not recommended for further investigation. Some of these sites became parts of other sites or were determined to have no known or suspected releases.

Site 20, Open Burning Areas: The exact locations of these areas were not positively identified in the Enhanced PA. These sites may actually be the burning areas already associated with other Ammunition Demolition Activity sites. Since the exact locations could not be identified, no sampling occurred during the Remedial Investigation activities. These areas no longer require environmental evaluation.

Site 28, Missile Fuel Burning Areas: These areas were not sampled during the Remedial Investigation because no groundwater contamination was expected. (Nitrate concentrations were low in the surface soils.) Minimal contamination migration was expected, as aniline and hydrazine fuels were not present in the environment.

Site 54, Possible Disposal Pit Location: This site is very small, existed for a very brief period, and would be impossible to locate; hence, no sampling occurred at this site during the Remedial Investigation.

Site 82, Former Gravel Pit/Disposal Location: Samples taken during the Remedial Investigation indicated no releases to the soil at this site; however, it was recommended the asbestos tiles buried at this location be removed and disposed of properly.

The following sites were not recommended for additional investigation in the Enhanced PA.

- ★ Site 2, Storage Igloos
- ★ Site 40, Jeep Storage Areas
- ★ Site 71, Possible Fire Training Pit
- ★ Site 72, Vehicle Storage Areas.

The following sites were recommended for further investigation/sampling in the Enhanced PA; however, no sampling occurred at these sites during Remedial Investigation activities.

- * Site 51, Large Open Storage Areas (vicinity of Coyote Coulee)
- * Site 63, Pier 386 Chemical Solution Disposal Area
- * Site 74, Oil/Fuel Transfer Station (Building 23)
- * Site 78, Building 608 and 614 Heat Exchange Systems.

At the following sites, samples taken during the Remedial Investigation analyses indicated no contamination was present at the site, and no further action was necessary.

- * Site 3, Hazardous Waste Storage Facility
- * Site 25, Locations I & II - metal Ore Piles
- * Site 33, Gravel Pit Disposal Area
- * Site 49, Drill and Transfer Site
- * Site 60, Active Firing Range
- * Site 61, Open Paint Spray Areas
- * Site 62, Paint and Solvent Disposal Areas
- * Site 64, Leaking Railcar Shipment Inspection Area
- * Site 65, Waste Paint and Solvent Disposal Area (Building 608)
- * Site 66, Brass Copper and Steel Storage Area
- * Site 67, Building 493 Paint Sludge Discharge Area
- * Site 68, Unsymmetrical Dimethyl Hydrazine Operations Area (Building 129)
- * Site 69, Skunk Works Area
- * Site 70, Wood Preserving Solution Spill Area
- * Site 75, Battery Acid Collection Sump (Building 31)
- * Site 76, Photographic Chemical Solution Disposal Area
- * Site 77, Paint Storage and Disposal Area (Building 36A)
- * Site 79, Malathion Spray Area
- * Site 80, Disposal Pit and Graded Areas
- * Site 81, Locations I & II - Former Raw Materials Storage
- * Site 83, Leaking Drum Storage Area
- * Operable Unit K: PCB Transformer Locations.

There are currently ^{nine} eight operable units at UMDA. These operable units are defined by USEPA protocol and are not the same operable units that are identified earlier in this report. They are as follows:

- * The Explosive Washout Lagoons Soils
- * The Deactivation Furnace Soils
- * The Inactive Landfills
- * The Active Landfills
- * The Explosive Washout Lagoons Groundwater
- * The Ammunition Demolition Activity Area
- * The Explosive Washout Plant (Building 489)
- * Miscellaneous UMDA Sites.

* ^{Supplemental}

The first four of the above mentioned operable units have Record of Decisions that present remedial action for the operable units in accordance with CERCLA as amended by Superfund Amendments and Reauthorization Act. The remedial activities associated with the Record of Decisions were selected by the Army and the USEPA, with the State of Oregon concurring with the decision.

Site 1, Deactivation Furnace (Soils Operable Units): The Army, USEPA, and the State of Oregon selected as a treatment remedy solidification and stabilization of all soil with lead concentrations exceeding the cleanup level of 500 mg/kg and disposal of the solidified soil in the UMDA Active Landfill (Site 11).

Site 4, Explosive Washout Lagoons (Soils Operable Unit): The treatment remedy selected by the Army, USEPA, and the State of Oregon for the explosive washout lagoons soils Operable Unit is excavation of contaminated soil and composting of the contaminated soils, followed by on-site disposal of the treated soils and provision of a 2-foot cover of clean soil.

Site 11, Active Landfill (Operable Unit): The Army, USEPA, and the State of Oregon have selected a no action remedy for this site as the Record of Decision. This selection was based upon information generated during the Remedial Investigation, which indicates that the site does not pose an unacceptable threat to human health and/or the environment. The landfill is scheduled to close in mid-1994, and will no longer accept municipal/solid waste from the depot. After mid-1994 the landfill will only accept solidified soil from the remediation activities occurring at the operable units.

Site 12, Inactive Landfills (Operable Unit): The Army, USEPA, and the State of Oregon had selected a no action remedy for the Inactive Landfills Operable Unit at UMDA as the Record of Decision. This selection was based upon information generated during the Remedial Investigation activities, which indicates that this site does not pose an unacceptable threat to human health and/or the environment.

The final four operable units have Draft Proposed Cleanup Plans associated with them. It is anticipated that these plans will be signed as Record of Decisions in early 1994. The plans for the Miscellaneous Sites Operable Unit includes 32 sites. The clean-up objectives of the plan are to prevent exposure to contaminated soils with a cancer risk level greater than 1×10^{-4} , and a noncarcinogenic hazard index greater than 2. Based on these objectives, clean-up of contaminated soil at Site 22 (Defense Reutilization and Marketing Office Area) and Site 36 (Building 493 Paint Sludge Discharge Area) is proposed.

The soil component of the other 30 sites did not meet the risk levels recommended in the plan, so no further action for the soil component at these sites is necessary. The Draft Proposed Cleanup Plan for the Ammunition Demolition Activity Area includes 20 sites. The cleanup objective of this plan is to prevent exposure to contaminated soils with a cancer risk level greater than 1×10^{-4} , and a non-carcinogenic hazard index greater than 1. Based on the objectives in this plan, cleanup of contaminated soil at the following sites is proposed:

- * Site 15, 2,4,6-Trinitrotoluene Sludge Burial and Burn Area
- * Site 16, Open Detonation Pits
- * Site 17, Aboveground Open Detonation Area
- * Site 19, Open Burning Trenches/Pads
- * Site 31, Pesticide Pits
- * Site 32 (II), Open Burning Trays.

Preliminary remediation goals have been established for each of the contaminants of concern at these sites. These preliminary remediation goals represent allowable residual concentrations of contaminants in soil after cleanup based on the risks and hazards they pose to human health.

4.2 ADDITIONAL AREAS IDENTIFIED BY THE CERFA INVESTIGATION

One new environmental concern was identified through the CERFA investigation. This new area requiring environmental evaluation (AREE) was associated with CERCLA-related environmental issues and was identified through on-site inspections, personnel interviews, and record searches. This site was not identified as an environmentally significant operation in the Enhanced PA and was not investigated during any Remedial Investigation activities that have been conducted at the installation. (In addition, existing AREEs which have undergone change are described in this section.)

The Oregon National Guard leases Building 115. The building is used as a vehicle maintenance facility for tracked and wheeled vehicles. According to the facility representative, a 50- to 80-gallon spill occurred immediately adjacent to the facility's southern bay door. Visibly contaminated soil was removed and allowed to naturally degrade at another location on the depot. No analysis was made of the excavation pit walls, and petroleum-contaminated soil may still be present at this site.

This spill could not be confirmed in later discussions.

4.3 ADJACENT AND SURROUNDING PROPERTIES

UMDA is located in Hermiston, Oregon and is bounded by the Union Pacific Railroad tracks and Interstate 84 on the south and Interstate 82 on the east. Agricultural activities extend beyond the two interstates. Agricultural activities dominate the property to the west and north of UMDA.

4.3.1 Existing or Potential Pathways of Contamination Migration

Topographic and hydrogeological information for UMDA (the BRAC property) provided in existing environmental documents was reviewed to assess potential contamination migration pathways onto UMDA from adjacent properties. This information was used in combination with data on potential contamination sources on adjacent and surrounding property to determine if there were any existing or potential environmental impacts on UMDA from off-site sources. Contamination source data were obtained through record searches, review of existing environmental reports, personnel interviews, and property site visits.

There are no major drainages that flow onto the installation. Groundwater is the primary migration pathway. Hydrologists consider flow near UMDA to be generally to the northwest, others consider the matter undecided.

4.3.2 Environmental Concerns from Adjacent and Surrounding Properties

In order to identify potential offsite contamination sources for the UMDA facility, a records search of Federal and State data bases (see Section 2.2) was conducted. The results of this search are provided in Appendix B. The search indicated the following:

- ★ UMDA is included on the National Priorities List. No other National Priorities List or CERCLA sites are located within a 3-mile radius of the UMDA facility.
- ★ No Resource Conservation and Recovery Act treatment, storage, or disposal facilities are located within a 3-mile radius of the site.
- ★ No large- or small-quantity generators of hazardous waste are reported within a 3-mile radius of the site.
- ★ No emergency response notification system spills are reported within a 3-mile radius of the site.
- ★ No underground storage tanks or leaking underground storage tanks are reported within a 3-mile radius of the site.

In addition to the data base search completed for the installation, adjacent property visual site inspections and owner/operator interviews were also conducted. During the site inspection, there was no visible evidence of adjacent property operations that represented a potential contamination migration source.

During the site visit, the adjacent properties were observed from the automobile. Much of the properties are farms. The area is heavily irrigated with groundwater.

In addition to the site-specific field investigation program, the UMDA Remedial Investigation included a number of other elements that were not related to particular known or suspected contamination source areas. The focus of these additional investigations was to evaluate conditions for the installation as a whole or to support the studies of specific site areas. These nonsource area investigations included evaluation of sources of nitrate/nitrite in UMDA groundwater and additional nonsource area groundwater contamination studies. Offsite sources of nitrate/nitrite in the vicinity of UMDA likely include fertilizer application/irrigation, other farming operations including livestock feedlots, fertilizer manufacturing (southwest of the installation), and private septic systems. The sparse population density in the area probably limits effects from private septic systems. In addition to nitrate/nitrite application, pesticide/herbicide use is likely due to the large amount of offsite agriculture.

A number of probable or possible nitrate/nitrite sources were identified in the area within approximately 3 miles of UMDA. These include general fertilization and irrigation of fields directly surrounding UMDA, potato processing plants and associated irrigation/wastewater disposal operations east and southeast of UMDA, a fertilizer manufacturer southwest of UMDA, a former hog feedlot immediately south of UMDA, and historical farming activities noted on aerial photographs. Each of these activities is detailed below.

Crop Cultivation: Nitrate fertilizers are used on many of the crops grown in irrigated areas surrounding UMDA. Because soils are generally coarse-textured, nitrate leaching rates from the ground surface to the water table (under the driving head of irrigation water) are likely to be high. Nitrate application rates were probably higher in the past but have been reduced in recent years. It is estimated that 40 to 60 pounds of nitrate/acre/year may have leached into groundwater from the late 1960s to 1975.

The Agricultural Extension Service at Hermiston provided the following summary of crops and nitrate application rates near UMDA:

- ★ **South of UMDA:** Potatoes and alfalfa are the primary crops, along with smaller crops of wheat or corn. Potatoes are considered the crop most likely to have caused nitrate contamination from fertilizer usage. In the past, potatoes were fertilized at 350 to 400 pounds nitrate/acre/year; the current rate is generally about 300 pounds/acre/year. Potatoes are generally grown for 3 years out of 10, with alfalfa grown during other years. Alfalfa needs no nitrate fertilizer, because it is capable of fixing nitrogen from the atmosphere. However, decomposition of alfalfa plants may produce nitrate.
- ★ **West of UMDA:** Crops in this area are typically rotated between potatoes, 3 years out of 10; alfalfa, 4 years out of 10; and corn, wheat, or other grains, 3 years out of 10. Grains generally are fertilized at the rate of 180 pounds/acre/year.
- ★ **North of UMDA:** Orchard crops are dominant north and northwest of UMDA. The rate of nitrate application is unknown.
- ★ **East of UMDA:** Corn, and corn in rotation with potatoes, are the primary crops in this area. Typical nitrate application rates are estimated to be 280 to 300 pounds/acre/year.

Potato Processing: Lamb-Weston of Hermiston operates a potato processing plant east of UMDA and disposes of process wastewater by irrigation of two areas. One area, encompassing about 1.5 square miles, is located just east of the northeast corner of UMDA. The second area, encompassing about 1 square mile, is located approximately 1 mile south of the southeast corner of UMDA. Process wastewater is first discharged into a holding pond before being used for irrigation. In the area east of UMDA, nitrate and groundwater elevations are monitored by 10 wells located within and at the boundaries. Six of the wells had nitrate/nitrite levels generally above 10,000 µg/L during the period November 1986 to January 1991.

Fertilizer Manufacturing: The Wilbur Ellis Company manufactures fertilizer at a location about 0.75 mile southwest of UMDA. The company's aboveground and underground storage tanks have all been replaced within the last 3 to 4 years, and operations are now considered to be leak-free.

Livestock Farming: A hog feedlot was operated immediately south of the UMDA Administration Area until approximately 1987. Operations may have begun about 1965; because signs of animals appear in 1965 aerial photographs but not in earlier photographs. This farm corralled up to 20,000 hogs. No other feedlot operations are definitely known to have operated in the area, though a feedlot may have operated for 1 year during the 1970s on a farm southwest of UMDA. Concentrations of farm animals are a potential source of nitrate due to their wastes.

Nitrate/nitrite contamination is common, but not universal, in groundwater near UMDA. Based on review of offsite data, the Remedial Investigation concluded that background nitrate/nitrite levels in groundwater in the Hermiston-Umatilla area are elevated. It is probable that historical as well as current farming activities have contributed to this condition. Because many of the constituents detected may be due to offsite sources or are naturally occurring at those levels and the levels are low, the Remedial Investigation recommended that no further action be taken unless the evaluation of risks determines otherwise.

4.4 RELATED ENVIRONMENTAL, HAZARDS, AND SAFETY ISSUES

Military installations frequently contain issues that USAEC believes fall outside of the provisions of CERFA. For example, while a release of lead-based paint onto the ground may be a CERCLA concern, the application of lead-based paint to a building surface is generally not. However, lead-based paint applied to buildings may represent a safety hazard to young children. Similarly, other substances or materials commonly applied to or found in buildings (for example, radon and asbestos) may not be explicitly regulated under CERCLA, but may require a notice to potential transferees and lessees that they exist.

USAEC has sought to balance the statutory requirements of CERFA with the law's intent to identify uncontaminated property to the public that can be expeditiously reused. Notice has been provided for those parcels that appear to be uncontaminated under the definition provided in CERFA, but which may contain environmental, hazard, or safety issues. Buildings that contain asbestos-containing materials, lead-based paint, or naturally occurring radon fall into this category and are identified as "CERFA Parcels with Qualifiers" in this CERFA Report. Parcels that contain stored (not in use) equipment that contain some level of PCB oil, stored low level radionuclide-containing equipment such as dials and weapon site posts, and unexploded ordnance are also designated "CERFA Parcels with Qualifiers".

In those cases, however, where for example, asbestos or PCBs have been disposed in the environment, the parcel has been identified as "CERFA Disqualified". In this example, the designation indicates that a CERCLA hazard may exist at this location. The following discussion addresses the presence of asbestos-containing material, lead-based paint, PCB storage, radon, unexploded ordnance, and radionuclides.

4.4.1 Asbestos

An asbestos survey was conducted facility-wide in numerous sampling efforts, the most comprehensive being in August 1992. This survey determined that 116 of the buildings at UMDA contain asbestos. None of the storage igloos were inspected as part of the asbestos survey, as it was assumed that none of the igloos contain asbestos.

Buildings with asbestos-containing material, i.e., 121 buildings, are shown in Table 5-1. Asbestos-containing material in poor condition is noted. Buildings with possible asbestos-containing material are also identified in Table 5-1. These are materials that inspectors deemed to be similar in appearance and texture to materials that were sampled and analyzed for asbestos content but for which no sample was collected. The remaining buildings at UMDA either tested negative for asbestos-containing material, tested below 1 percent asbestos-containing material, or did not contain suspect material. Therefore, the asbestos content of all buildings at UMDA is known.

4.4.2 Lead-based Paint

There has been no lead-based paint survey of the facility. To quantify areas that potentially contain lead-based paint, it was assumed that those structures constructed prior to 1978 contain lead-based paint (with the exception of the storage igloos, the safehouses, and the transfer depots that are assumed to be unpainted). Buildings with lead-based paint, i.e., the majority of buildings in the BRAC property, are shown in Table 5-1.

4.4.3 Polychlorinated Biphenyls

Buildings 77 and 203 are the only locations where PCB-containing materials are documented as having been stored. See Section 4.1.1 and Table 5-1 for PCB releases.

4.4.4 Radon

A radon survey was conducted facility-wide in two sampling efforts, most recently in August 1993. During the first effort, Building 165 were tested in 1993. Ninety-seven different buildings were sampled. Ten percent of the igloo blocks were tested. Buildings were considered to be positive for radon if a test result greater than 4.0 pCi/L was obtained. The results concluded that radon was present in 10 buildings (shown in Table 5-1). Only 3 of the non-igloo buildings tested positive for radon. Because igloos in Block D, Block E, and Block H tested positive, the results were considered to be representative of the rest, and it was assumed that particular block may have radon gas.

4.4.5 Unexploded Ordnance

Although ordnance materials are stored at numerous locations at UMDA, regular detonations have been confined to the Ammunition Demolition Activity. Those areas having greatest potential for unexploded ordnance include detonation pits, detonation areas, and burning areas. Other disposal sites are not well documented; they have a small chance of containing unexploded

ordnance. Because of the large uncertainty about unexploded ordnance locations within the Ammunition Demolition Activity, the entire area is being classified as containing unexploded ordnance. Storage or usage of conventional ordnance is considered a non-CERCLA related issue, whereas disposal (such as by open detonation in the Ammunition Demolition Activity area) is considered a CERCLA issue. Unexploded ordnance at the Ammunition Demolition Activity has been disposed of, as compared to being fired on a range, and therefore is considered a waste and a hazardous substance under CERCLA/RCRA. Thus, all of the Ammunition Demolition Activity is disqualified because of unexploded ordnance.

4.4.6 Radionuclides

The only use or storage of radioactive materials at UMDA occurs at Building 656 and Block K igloos.

Approximately 50 M-43 Al chemical agent automatic alarms are stored at Building 656. These alarms are used at igloos located in Block K to detect chemical leaks. Each alarm contains americium-241 (a low level radioactive alpha source) in its detector cell. These units are operated under a blanket license that is issued to the Depot System Command.

According to UMDA personnel, there has never been a release of radioactive materials at the installation. Alarms are sent out when they need service; they are never serviced at UMDA.

4.5 REMEDIATION EFFORTS

Remediation efforts conducted on UMDA to date are described within this section. The majority of effort at the depot has been spent in environmental investigations to determine the degree and extent of possible contamination. The Human Health Baseline Risk Assessment for the depot identifies the carcinogenic and noncarcinogenic risks of 6 future land uses and 12 pathways of exposure for the existing AREEs at the depot. Remedial activities conducted to date are listed below and supporting documentation can be found in UMDA files.

- ★ ***Underground Storage Tank Removal:*** Twenty-eight underground storage tanks formerly used to store petroleum products have been removed under several different contracts.
- ★ ***Site 1 - Deactivation Furnace:*** A Record of Decision was signed for this site in December 1992. Currently, the furnace equipment and some lead contaminated soils have been removed.
- ★ ***Asbestos:*** An asbestos survey and abatement has been conducted at UMDA. Additional asbestos remediation is due to be conducted during FY94.
- ★ ***PCB Transformers:*** PCB transformers have been removed at UMDA.

In addition to the above remediation efforts, four Record of Decisions have been signed regarding four of the nine operable units at UMDA. Four additional Draft Records of Decisions

are expected to be signed in June 1994 for the remaining five operable units. These 9 operable units are defined by USEPA remediation requirements and are not the same (10) operable units that are identified earlier in this report in Table 4-1.

Record of Decisions and Draft Record of Decisions were discussed for the nine operable units in the following parts of this report:

| | | |
|-----|--|----------------|
| OU1 | Deactivation Furnace Soils | Section 2.1.13 |
| OU2 | Explosive Washout Lagoon Soils | Section 2.1.12 |
| OU3 | Explosive Washout Lagoon Groundwater | Section 2.1.20 |
| OU4 | Ammunition Demolition Activity Area | Section 2.1.19 |
| OU5 | Miscellaneous Sites | Section 2.1.18 |
| OU6 | Explosive Washout Plant | Section 2.1.17 |
| OU7 | Active Landfill | Section 2.1.16 |
| OU8 | Inactive Landfill | Section 2.1.15 |
| OU9 | Supplementary Sites and PCB Transformers Locations | Section 2.1.22 |

The sites as shown on Table 4-1 fall within each new operable unit as follows:

- OU1 Deactivation Furnace Soils OU
 - Site 1 Deactivation Furnace

- OU2 Explosive Washout Lagoons Soils OU
 - Site 4 Explosive Washout Lagoons

- OU3 Explosive Washout Lagoons Groundwater OU
 - Site 4 Explosive Washout Lagoons

- OU4 Ammunition Demolition Activity Area OU
 - Site 7 Aniline Pit
 - Site 8 Acid Pit
 - Site 13 Smoke Canister Disposal Area
 - Site 14 Flare and Fuse Disposal Area
 - Site 15 TNT Sludge Burial and Burn Area
 - Site 16 Open Detonation Pits
 - Site 17 Aboveground Open Detonation Area
 - Site 18 Dunnage Pits
 - Site 19 Open Burning Trenches/Pads
 - Site 21 Missile Fuel Storage Areas
 - Site 31 Pesticide Pits
 - Site 32 Open Burning Trays
 - Site 38 Pit Field Area

Site 41 Chemical Agency Decontamination Solution Burial Area
Site 55 Trench/Burn Field
Site 56 Munitions Crate Burn Area
Site 57 Former Pit Area Locations
Site 58 Borrow/Burn/Disposal Area
Site 59 Chemical Agent Decontamination Solution Disposal Areas
Site 60 Active Firing Range

OU5 Miscellaneous Sites OU

Site 3 Hazardous Waste Storage Facility
Site 5 Sewage Treatment Plant
Site 9 Remote Munitions Disassembly GB Bomb Area
Site 10 Former Agent H Storage Area
Site 22 Defense Reutilization Marketing Office Area
Site 25-I Metal Ore Piles - Location I
Site 25-II Metal Ore Piles - Location II
Site 26 Metal Ingot Stockpiles
Site 27 Pesticide Storage Building
Site 29 Septic Tanks
Site 30 Stormwater Discharge Area
Site 33 Gravel Pit Disposal Area
Site 34 Paint Spray and Shot Blast Areas
Site 35 Malathion Storage Leak Area
Site 36 Building 493 Sludge Discharge Area
Site 37 Building 131 Paint Sludge Discharge Area
Site 39 QA Function Range
Site 44-I Road Oil Applications Disposal Sites
Site 44-II Road Oil Applications Disposal Sites
Site 45 Building 612 and Building 617 Boiler Discharge Area
Site 46 Railcar Unloading Area
Site 47 Boiler/Laundry Effluent Discharge Area
Site 48 Pipe Discharge Area
Site 49 Drill and Transfer (DAT) Site
Site 50 Railroad Landfill Area
Site 52 Coyote Coulee Discharge Gullies
Site 53 Building 493 Collection Sump/Cistern and Disposal Area
Site 67 Building 493 Brass Cleaning Operations Area
Site 80 Disposal Pit and Graded Area
Site 81-I Former Raw Materials Storage
Site 81-II Former Raw Materials Storage
Site 82 Former Gravel Pit/Disposal Location

OU6 Explosive Washout Plant OU

Site 5 Explosive Washout Plant

- OU7 Active Landfill OU
- Site 11 Active Landfill
- OU8 Inactive Landfills OU
- Site 12 Inactive Landfills
- OU9 Supplementary Remedial Investigation Study Sites and PCB Transformer Location OU
- Site 12 Inactive Landfills (two additional areas within the Northern Inactive Landfill)
- Site 68 Former UMDH Operations Area
- Site 69 Skunk Works Area
- Site 64 Leaking Railcar Shipment Inspection Area
- Site 70 Wood Preserving Solution Spill Area
- Site 75 Battery Acid Collection Sump
- Site 76 Photographic Chemical Solution Disposal Area
- Site 77 Paint Storage and Disposal Area
- Site 83 Leaking Drum Storage Area
- Site 61 Open Paint Spray Areas
- Site 62 Paint and Solvent Disposal Area
- Site 65 Waste Paint and Solvent Disposal Area
- Site 66 Brass, Copper, and Steel Storage Area
- Site 79 Malathion Spray Area
- PCB Transformer Locations: 79 locations

The following sites were not recommended for additional investigation in the Enhanced PA.

- ★ Site 2, Storage Igloos
- ★ Site 40, Jeep Storage Areas
- ★ Site 51, Large Open Storage Areas (vicinity of Coyote Coulee)
- ★ Site 71, Possible Fire Training Pit
- ★ Site 72, Vehicle Storage Areas.

The following sites were recommended for further investigation/sampling in the Enhanced PA; however, during Supplementary Work Plan preparation it was determined that no investigation was necessary based on existing information.

- ★ Site 63, Pier 386 Chemical Solution Disposal Area
- ★ Site 74, Oil/Fuel Transfer Station (Building 23)
- ★ Site 78, Building 608 and 614 Heat Exchange Systems.

Historical Aerial Photograph Sites, AX1-AX74: These sites, identified during the Enhanced PA using historical aerial photographs, were not recommended for further investigation following

interviews with former UMDA employees. Some of these sites became parts of other sites or were determined to have no known or suspected releases.

Sites 22, 24, 42, 43, and 73 were investigated as part of the underground storage tank survey.

4.6 CERFA-EXCLUDED PARCELS

CERFA-Excluded Parcels consist of those parcels to be retained by the Army or other Department of Defense agency or property that will be transferred to another Federal agency with restrictions by statute. At present, the Army does not have plans to retain permanently any portion of UMDA. However, the chemical weapons stockpile stored at UMDA will require continued security until the chemical demilitarization program can be completed, currently estimated to occur in the Year 2003. Until that time the stockpile area and any other depot areas required to maintain the stockpile area must be retained by the Army.

5.0 SITE PARCELIZATION

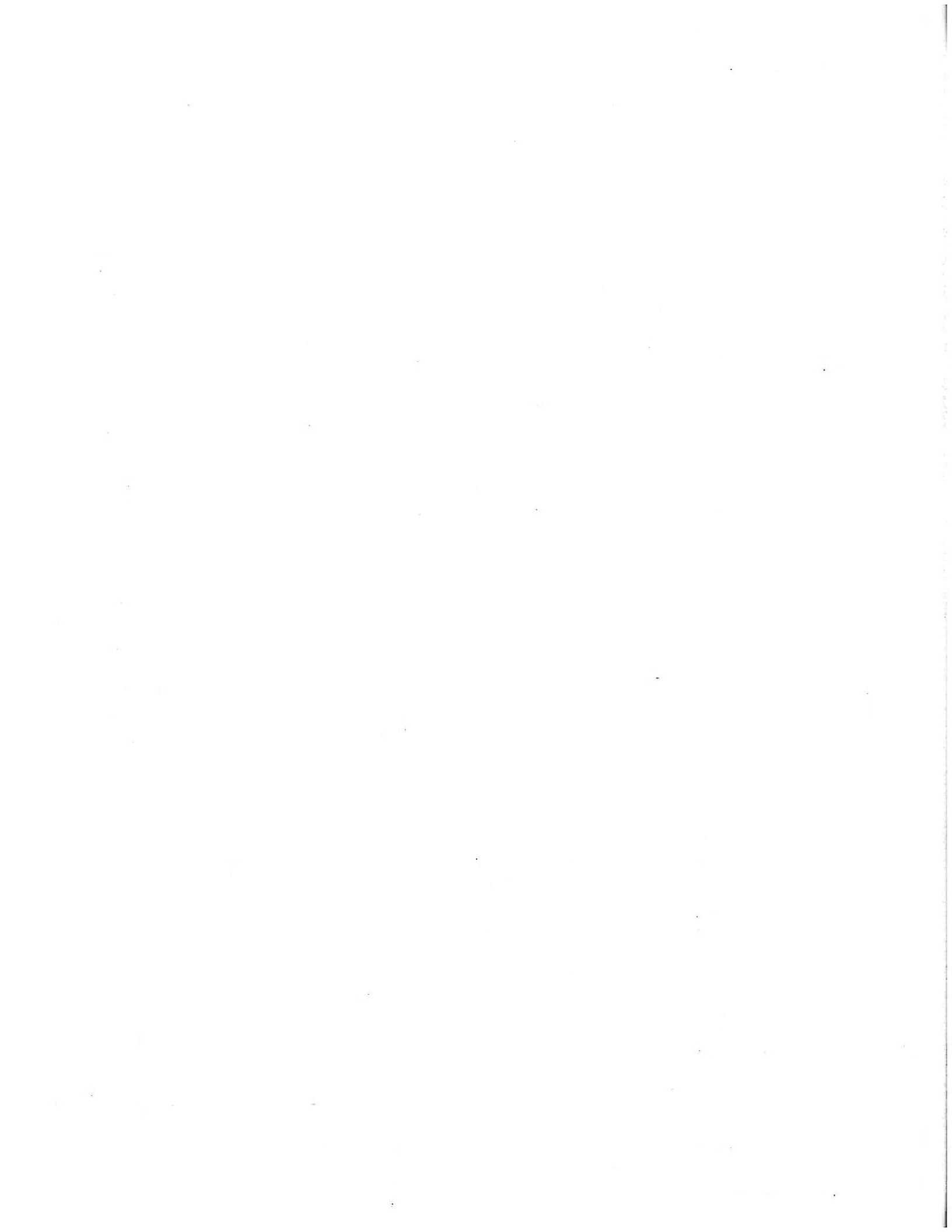
After reviewing investigation documents, regulatory records, personnel interviews, and visual inspections, TETC identified parcels on the installation as CERFA Parcels, CERFA Parcels with Qualifiers, CERFA Disqualified Parcels, or CERFA-Excluded Parcels in accordance with the definitions in Section 1.2. The parcels are delineated on a map of the BRAC portion of the installation using a 1-acre square grid for boundary definition. The Army chose a 1-acre grid system to aid in the presentation of data gathered during the CERFA Report investigation, and to facilitate use of the document by reuse groups and others. The 1-acre grid provided a consistent method to report and locate environmental or other concerns. In the many cases where the concerns are much smaller than 1-acre, the grid system simplifies the depiction of the concern. Accordingly, the areal extent of many small areas of concern, such as underground storage tank sites, are liberally depicted in the CERFA Report. Additionally, the 1-acre grid size was chosen as a generally redevelopable parcel size for either industrial or residential uses. However, the grid does not drive reuse nor restrict it. Reuse decisions should be made irrespective of the grid. The entire 1-acre grid square is colored or shaded to indicate the applicable parcel category on the basis of the history of storage or release for any portion of that square. Parcels are labelled according to a system outlined in Section 1.2 of this report to indicate the applicable parcel category and the contaminating circumstances. Parcel labels are connected to the respective parcel boundaries by a line or are located within the parcel boundaries.

Where CERFA Disqualified Parcels and CERFA Parcels with Qualifiers have coincided, the overlapped area has been designated CERFA Disqualified. Labels for any such overlapped parcels also indicate the presence of the qualifying hazards. CERFA-Excluded Parcels have been excluded from this investigation of contaminant locations and therefore do not overlap with CERFA Disqualified Parcels or CERFA Parcels with Qualifiers. Structures within CERFA Disqualified Parcels that contain qualifying safety hazards are designated with the applicable qualifying label, where map scale permits this level of detail.

TETC's investigation and subsequent parcelization of UMDA determined that approximately 11,467 acres of the facility fall within the CERFA Parcel category. Approximately 2,647 acres of the facility are categorized as CERFA Parcels with Qualifiers. Two thousand three hundred and nineteen (2,319) acres constitute the CERFA Disqualified portion of the installation. The CERFA Parcels are located predominantly in the storage igloo area of the installation.

In determining the applicable parcel categories for the installation property, TETC observed the following guidelines provided by the USAEC for specific circumstances:

- ★ Buildings constructed prior to 1978 are assumed to contain lead-based paint. A similar assumption is made for asbestos in buildings constructed prior to 1985.
- ★ Storage of petroleum products, petroleum derivatives, and CERCLA-regulated hazardous substances will prevent an area from becoming a CERFA Parcel as long as that storage is for one year or longer. The quantity of substances stored



is not relevant to determining the applicable parcel category. However, if the operation requiring such substances is in the immediate area, and the storage is in limited quantities for immediate use, the area is not precluded from being a CERFA Parcel.

- ★ Nonleaking equipment containing less than 50 parts per million PCBs does not preclude an area from becoming a CERFA Parcel. Nonleaking, out-of-service equipment with greater than 50 parts per million PCBs will place an area in the CERFA Parcel with Qualifier category. An area is designated CERFA Disqualified if there is a known release containing greater than 50 parts per million PCBs.
- ★ Areas where there are transport systems or equipment that handle hazardous substances or petroleum products and on which there has been no release, storage, or disposal of these substances are categorized as CERFA Parcels.
- ★ Ordnance disposal locations are designated CERFA Disqualified. This does not include ordnance impact areas that are designated CERFA Parcels with Qualifiers.
- ★ Routine pesticide and herbicide application in accordance with manufacturer's directions and chlorofluorocarbons and halon in operational systems do not preclude an area from becoming a CERFA Parcel.
- ★ Coal storage piles and railroad tracks do not automatically preclude an area from becoming a CERFA Parcel.

State and Federal (where applicable) comments on the draft CERFA Report were incorporated into the final CERFA Report. These comments are provided in Appendix C.

5.1 PARCEL DESIGNATION MAPS

Table 5-1, Figure 5-1A, and Figure 5-1B identify the breakdown of UMDA property according to the criteria for parcel identification under CERFA. Appendix D contains the data base from which Table 5-1 and Figures 5-1A and 5-1B are generated.

5.2 TRACT MAP

The property boundaries and all property transfers including prior ownership information is shown in Figure 5-2.

5.3 SUMMARY CERFA MAPS

Figure 5-3A and 5-3B summarize the breakdown of UMDA property according to the criteria for parcel identification under CERFA.

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|---------------|----------------------|------------------------|--|---|---|----------------|--|
| 1P | 11337 | 135,58 | | CERFA Parcel | No hazardous substances or petroleum products have been stored, released or disposed in this area. | | |
| 2D-X(P)/HR(P) | 323 | 136,127 | QA Function Range Munitions Testing (Site #39) | Disqualified, Hazardous Substance Release (P) Qualified, Unexploded Ordnance (P) | Release of Explosives, nitrates, heavy metals associated with QA function range-munitions testing Unexploded Ordnance, flares and pyrotechnics associated with Northeast corner of Depot | 2,16,22 44 | Draft ROD expected to be signed June 1994, no further actions for this site UXO will be addressed upon property transfer for safety reasons |
| 3Q-A/L/X | 1021 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 13, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| | | 29,90 | Building 624 | Qualified, Asbestos Qualified, Lead | Asbestos Containing Material associated with Cement Board Panels Asbestos Containing Material associated with Gasket Lead-based paint associated with structure built in 1962 | 26 26 43 | High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) |
| 4D-PS | 1 | 32,119 | Former Aboveground Storage Tank 3 | Disqualified, Petroleum Storage | Unknown stored in AGT(former AGT 3 - Security Entrance) | 2 | |
| 5D-A/L/PS | 1 | 53,119 | Building 621 | Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage | Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1961 Propane stored in 500 gal AGT(Well house) | 26 43 52 | Low - Movable Barrier/Crd. Ht. (Good Condition) Active |
| 6Q-L | 2 | 59,119 | Building 613 | Qualified, Lead | Lead-based paint associated with structure built in 1955 | 43 | |
| 7D-X/HR | 12 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 13, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| | | 30,115 | Borrow/Burn/Disposal Area (Site #58) | Disqualified, Hazardous Substance Release | Release of Explosives, nitrates, heavy metals, BNAs associated with borrow/burn/disposal area | 2,16,22 | No contaminants of concern were identified, ROD signed. |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION | | | | | | | |
|---|----------------------|------------------------|---|--|---|---|--|-----|-----------------|------------------------------|--|---|---|---|
| 8D-A/L/PSHR | 4 | 37,111 | Building 614 | Disqualified, Hazardous Substance Release (P) Qualified, Asbestos | Release of Heavy metals, explosives associated with Site 47 effluent discharge. | 2,16,22 2,16,22 26 26 26 26 26 26 26 26 26 43 26 26 43 43 2,16,22 26 26 26 43 2,36 2,36 | Draft ROD expected to be signed June 1994, no further actions for this site. This site was re-evaluated during preparation of the SRI work plan and it was determined no sampling was necessary. None - Permanent Barrier (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) None - Permanent Barrier (Good Condition) High - Within Easy Reach (Good Condition) None - Permanent Barrier (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Poor Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) | | | | | | | |
| | | | | | Release of VOAs, BNAs, heavy metals, reactive sulf associated with Site 78 heat exchange system | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Caulking | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Cement Board Siding | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Cloth Tape | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Flashing | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Gasket | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Pipe Insulation (Aircel) | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Pipe Joints/Tees/Valves | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Tank Insulation (Mag) | | | | | | | | | |
| | | | | | Lead-based paint associated with structure built in 1938 | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Caulking | | | | | | | | | |
| Asbestos Containing Material associated with Flashing | | | | | | | | | | | | | | |
| Lead-based paint associated with structure built in 1938 | | | | | | | | | | | | | | |
| Lead-based paint associated with structure built in 1938 | | | | | | | | | | | | | | |
| 9D-FHR | 3 | 87,112 | Former Agent H Storage Area (Site #10A) | Disqualified, Hazardous Substance Release | Release of Heavy metals associated with Site 45 boiler discharge | 2,16,22 26 26 26 43 2,36 2,36 | Draft ROD expected to be signed June 1994, no further actions for this site. High - Within Easy Reach (Good Condition) Low - Movable Barrier/Grt. Ht. (Good Condition) Low - Movable Barrier/Grt. Ht. (Good Condition) Removed | | | | | | | |
| | | | | | Asbestos Containing Material associated with Cement Board Panels | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Flashing | | | | | | | | | |
| | | | | | Asbestos Containing Material associated with Gasket | | | | | | | | | |
| | | | | | Lead-based paint associated with structure built in 1938 | | | | | | | | | |
| | | | | | Diesel Fuel No. 2 stored in 2,500 gal UST - First used in 1945(UST 12) | | | | | | | | | |
| | | | | | Diesel Fuel No. 2 stored in UST - First used in 1985(UST 55) | | | | | | | | | |
| | | | | | 10D-A/L/RD/PSHR/HIS | | | 507 | 80,106 75,97 | Building 653 Building 654 | Qualified, Lead Disqualified, Petroleum Storage Qualified, Asbestos (P) Disqualified, Petroleum Storage | Release of Thiouglycol, IMPA, EMIPA associated with former Agent H storage area | 2,16,22 43 57 26 26 26 2,36 2,36 | Draft ROD expected to be signed June 1994, no further actions for this site. Active High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) These two tanks are actually one tank. |
| | | | | | | | | | | | | Lead-based paint associated with structure built in 1933 | | |
| | | | | | | | | | | | | Diesel Fuel stored in 285 gal AGI(Tank associated with generator) | | |
| | | | | | | | | | | | | Asbestos Containing Material associated with Ceiling Tile (Drop-in 2' x 4') | | |
| | | | | | | | | | | | | Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board | | |
| Asbestos Containing Material associated with Sliert Vinyl | | | | | | | | | | | | | | |
| Diesel Fuel No. 2 stored in 4,000 gal UST - First used in 1987(UST 15) | | | | | | | | | | | | | | |
| Chemical decontamination rinsewater stored in UST - First used in 1987(UST 38/UST 95) | | | | | | | | | | | | | | |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X, Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|----------------------|----------------------|-------------------------|---|--|---|---|---|
| 10D-1/L/R/D/P/HR/HIS | 507 | 74,95 | Building 655 | Disqualified, Hazardous Substance Release (P) Qualified, Asbestos (P) | Release of Sulfides, heavy metals, IMPA, EMPA associated with Site 29 A&B septic tanks Asbestos Containing Material associated with Ceiling Tile (Drop-in 2' x 4') Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board Asbestos Containing Material associated with Pipe Joints/Fees/Valves Asbestos Containing Material associated with Sheet Vinyl Asbestos Containing Material associated with Vibration Isolator Diesel Fuel No.2 stored in 6,000 gal UST - First used in 1982(UST 16) | 2,16,22 26 26 26 26 26 26 2,36 | Draft ROD expected to be signed June 1994, no further actions for this site High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) Moderate - Partial Barrier (Good Condition) High - Within Easy Reach (Good Condition) Low - Movable Barrier/Gt. Ht. (Good Condition) |
| | | 79,105 | Building 656 | Disqualified, Petroleum Storage Qualified, Asbestos (P) | Asbestos Containing Material associated with Ceiling Tile (Drop-in 2' x 4') Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board Asbestos Containing Material associated with Floor Tile (12in. x 12in.) Presence of Americium 241 associated with Quality Assurance Facility Chemicals stored in UST - First used in 1984(UST 54) | 26 26 26 17 2,36 | High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) No reported spills UST removed in 1992. Replaced with a new UST. |
| | | 78,100 | Building 659 | Qualified, Asbestos Qualified, Lead | Asbestos Containing Material associated with Access denied (see building report for details) Lead-based paint associated with structure built in 1978 | 26 43 | Good Condition |
| | | 93,93 | Building 660 | Qualified, Asbestos (P) | Asbestos Containing Material associated with Ceiling Tile (Drop-in 2' x 4') Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board Asbestos Containing Material associated with Finishing Asbestos Containing Material associated with Floor Tile (12in. x 12in.) Asbestos Containing Material associated with Tar Paper and Tar Asbestos Containing Material associated with Vibration Isolator | 26 26 26 26 26 26 26 2,36 | Moderate - Partial Barrier (Good Condition) High - Within Easy Reach (Good Condition) None - Permanent Barrier (Good Condition) High - Within Easy Reach (Good Condition) None - Permanent Barrier (Good Condition) High - Within Easy Reach (Good Condition) |
| | | 82,110 | Drill and Transfer Site (Site #49) | Disqualified, Petroleum Storage | Diesel Fuel No. 2 stored in 10,310 gal UST - First used in 1985(UST 17) | 2 | No spills reported; confirmational sampling recommended. |
| | | 75,95 | Former Aboveground Storage Tank 11 | Disqualified, Hazardous Substance Storage (P) | Unknown stored in Drums(drill and transfer site) | 2 | |
| | | 75,94 | Former Aboveground Storage Tank 12 | Disqualified, Petroleum Storage | Unknown stored in AGT(Former AGT 11 - K Block A&Ironwood) | 2 | |
| | | 93,112 | Former Agent H Storage Area (Site #109) | Disqualified, Petroleum Storage | Unknown stored in AGT(Former AGT 12) | 2 | |
| | | 93,110 | Former Agent H Storage Area (Site #108) | Disqualified, Hazardous Substance Release | Release of Thioglycol, IMPA, EMPA associated with former Agent H storage area | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 93,110 | Former Agent H Storage Area (Site #10C) | Disqualified, Hazardous Substance Release | Release of Thioglycol, IMPA, EMPA associated with former Agent H storage area | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION | | | | | | | | |
|-----------------------------------|----------------------|---------------------------------|---|---|---|---|--|---|--|---------|---|--|--|----------|---|
| 10D-/AL/RDPS/HR/HS | 507 | 90,91 76,99 86,96 | Metal Ore Piles (Site #135) Pier 386 Chemical Solution Disposal (Site #63) Storage Igloos Block K | Disqualified, Hazardous Substance Storage Disqualified, Hazardous Substance Release (P) Disqualified, Hazardous Substance Storage | Metal ore stored in Piles - First used in 1945 (metal ore piles) Release of IMPA, EMPA associated with pier 386 chemical solution disposal Mustard gas, Nerve agents stored in Drums - First used in 1941 (chemical agent storage igloos) | 2 2,16,72 38,44 | Active - Draft ROD expected to be signed 6/94, no further action for this site. Draft ROD expected to be signed June 1994, no further actions for this site Active | | | | | | | | |
| | | | | | | | | 11Q-/AL | 1 | 35,111 | Building 619 | Qualified, Asbestos Qualified, Lead | Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1939 | 26 43 | High - Within Easy Reach (Good Condition) |
| | | | | | | | | | | | | | | | |
| Former Aboveground Storage Tank 4 | 55,108 | Disqualified, Petroleum Storage | Unknown stored in AGT (Former AGT 4 - South of Bldg 612) | 2 | Active | | | | | | | | | | |
| | | | | | | Waste Paint/Solvent Disposal (Site #65) | 56,110 | Disqualified, Hazardous Substance Release | Release of VOAs, BNAs, heavy metals associated with waste paint/solvent disposal | 2,16,72 | Draft ROD expected to be signed June 1994, no further actions for this site | | | | |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|---------------|----------------------|------------------------|---|---|--|----------------------------|--|
| 13Q-L | 1 | 36,110 | Building 616 | Qualified, Lead | Lead-based paint associated with structure built in 1958 | 43 | |
| 14D-XXHR | 99 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 pits within the ADA are expected to have soil remediation (files 15, 17, 19, 31, 33) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| | | | Dumpage Pits (Site #18) | Disqualified, Hazardous Substance Release | Release of Metals, explosives, nitrates, VOAs, BNAs associated with Dumpage pits | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | GB/VX Decontamination Solution Area (Site #59A) | Disqualified, Hazardous Substance Release (P) | Release of GB/VX degradation products associated with GB/VX decontamination solution disposal area | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | GB/VX Decontamination Solution Burial Area (Site #) | Disqualified, Hazardous Substance Release (P) | Release of GB/VX degradation products associated with GB/VX decontamination solution burial area | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | Open Burning Trays (Site #32) | Disqualified, Hazardous Substance Release | Release of Heavy metals, explosives associated with open burning trays | 2,16,22 | Soil remediation is to be conducted at this site due to heavy metal contamination. Draft ROD expected to be signed 6/94 |
| | | | Open Burning Trenches/Pads (Site #19) | Disqualified, Hazardous Substance Release (P) | Release of Heavy metals, explosives, nitrates associated with Open burning trenches/pads | 2,16,22 | Soil remediation is to be conducted at this site due to heavy metal contamination. Draft ROD expected to be signed 6/94 |
| 15Q-L/R | 270 | 119,96 128,98 | Building 424 | Qualified, Lead | Lead-based paint associated with structure built in 1942 | 43 | |
| | | | Storage Igloos Block E | Qualified, Radon | Radon gas present based on Concrete Sample On E1325 (Concentration=5.1 pCi/L) Radon gas present based on Concrete Sample On E1339 (Concentration=4.3 pCi/L) Radon gas present based on Concrete Sample On E1347 (Concentration=4.9 pCi/L) | 34 34 34 | |
| | | | Building 605 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels Asbestos Containing Material associated with Flashing Asbestos Containing Material associated with Roofing Shingles Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1950 | 26 26 26 26 43 | Moderate - Partial Barrier (Good Condition) None - Permanent Barrier (Good Condition) None - Permanent Barrier (Poor Condition) None - Permanent Barrier (Good Condition) |
| | | | Building 606 | Qualified, Lead Qualified, Asbestos | Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1952 | 26 43 | Low - Movable Barrier/Grt. Ht. (Good Condition) |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDATION OR MITIGATION |
|----------------------------|----------------------|-------------------------|--|--|---|---------------------------|--|
| 16D-A/J/PS/HR(P) | 30 | 48,100 47,101 | Building 606 Remote Munitions/CB Bomb Disaster (Site #9) | Disqualified, Petroleum Storage Disqualified, Hazardous Substance Release (P) | Unknown stored in AGT(AGT 21 - Remote TV Site) Release of Heavy metals, explosives associated with remote munitions/CB Bomb disaster | 2 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| 17Q-A | 1 | 108,103 | Building 697 | Qualified, Asbestos | Asbestos Containing Material associated with Caulking | 26 | High - Within Easy Reach (Good Condition) |
| 18D-XX/HR | 21 | 13,110 11,98 9,96 | Ammunition Demolition Area TNT Sludge Burial & Burn Area (Site #15) Trench/Burn Field (Site #55) | Qualified, Unexploded Ordnance Disqualified, Hazardous Substance Release Disqualified, Hazardous Substance Release | Unexploded Ordnance associated with Ammunition Demolition Area Release of Explosives, nitrate, VOA's, BNA's associated with TNT sludge burial & burn area Release of Explosives, nitrates associated with trench/burn field | 17 2,16,22 2,16,22 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. Soil remediation is to be conducted at this site due to heavy metal contamination. Draft ROD expected to be signed 6/94 Draft ROD expected to be signed June 1994, no further actions for this site |
| 19D-XX/HR | 6 | 13,110 21,95 | Ammunition Demolition Area Munitions Cratic Burn Area (Site #56) | Qualified, Unexploded Ordnance Disqualified, Hazardous Substance Release | Unexploded Ordnance associated with Ammunition Demolition Area Release of Explosives, nitrates, heavy metals associated with munitions cratic burn area | 17 2,16,22 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. Draft ROD expected to be signed June 1994, no further actions for this site |
| 20D-RR/HR | 24 | 138,93 124,80 | Active Landfill (Site #11) Storage Igloos Block D | Disqualified, Hazardous Substance Release Qualified, Radon | Release of Explosives, nitrates, heavy metals, CN associated with active landfill Radon gas present based on Concrete Sample On D1265 (Concentration=9.3 pCi/L) Radon gas present based on Concrete Sample On D1274 (Concentration=7.3 pCi/L) Radon gas present based on Concrete Sample On D1291 (Concentration=16.9 pCi/L) | 2,16,22 34 34 34 | ROD signed for no further action. |
| 21D-A/J/PP/PP/PP/PS/HR/H S | 387 | 11,92 | Aboveground Open Detonation Area (Site #17) | Disqualified, Hazardous Substance Release | Release of Heavy metals, explosives associated with aboveground Open Detonation area | 2,16,22 | Soil remediation is to be conducted at this site due to heavy metal contamination. Draft ROD expected to be signed 6/94 |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|---------------------------------|----------------------|------------------------|--|---|--|---------------|--|
| 21D-1A/D/P/Y/X/R(P)/P/S/H/R/H/S | 387 | 21,71 | Acid Pit (Site #8) | Disqualified, Hazardous Substance Release | Release of Nitrate, heavy metals associated with Acid pit | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| | | 21,72 | Aniline Pit (Site #7) | Disqualified, Hazardous Substance Release | Release of Aniline associated with Aniline pit | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 15,54 | Building 202 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Asbestos (P) | Asbestos Containing Material associated with Cement Board Panels | 26 | Moderate - Partial Barrier (Poor Condition) |
| | | | | Qualified, Asbestos (P) | Asbestos Containing Material associated with Debris | 26 | High - Within Easy Reach (Poor Condition) |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Asbestos (P) | Lead-based paint associated with structure built in 1942 | 43 | High - Within Easy Reach (Good Condition) |
| | | 14,54 | Building 203 | Qualified, Asbestos (P) | Asbestos Containing Material associated with Cement Board Panels | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Cement Board Panels (Assessed Material) | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Disqualified, Hazardous Substance Storage | Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Disqualified, Hazardous Substance Release (P) | Asbestos Containing Material associated with Drywall/Sheet Rock/Wall Board (Assessed Material) | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Disqualified, Hazardous Substance Release (P) | Asbestos Containing Material associated with Tar Paper and Tar (Assessed Material) | 26 | Low - Movable Barrier/Grt. Ht. (Good Condition) |
| | | | | Disqualified, Hazardous Substance Release (P) | Asbestos Containing Material associated with structure built in 1942 | 26 | Low - Movable Barrier/Grt. Ht. (Good Condition) |
| | | | | Disqualified, Hazardous Substance Release (P) | Agent orange components (24-D, 245-T, 2378-TCDD) stored in Drums (hazardous waste storage) | 43 | Low - Movable Barrier/Grt. Ht. (Good Condition) |
| | | 15,56 | Disposal Pit and Graded Areas (Site #80) | Disqualified, Hazardous Substance Release (P) | Release of Liquid waste associated with disposal pit and graded areas | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 6,85 | Flare/Fuse Disposal/Bird Cage (Site #14) | Disqualified, Hazardous Substance Release | Release of Explosives associated with Flare/Fuse Disposal/Bird Cage | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 7,89 | Former Pit Locations (Site #37A) | Disqualified, Hazardous Substance Release | Release of Explosives, nitrates, heavy metals associated with former pit area locations | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 16,68 | Former Pit Locations (Site #37B) | Disqualified, Hazardous Substance Release | Release of Explosives, nitrates, heavy metals associated with former pit area locations | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | 14,62 | Missile Fuel Storage Area (Site #21) | Disqualified, Petroleum Release (P) | Release of Anilane, hydrazine associated with release from drum | 7 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | | Disqualified, Petroleum Storage | Missile fuel stored in Drum (Missile Fuel Storage Areas) | 2, 16 | Draft ROD expected to be signed 6/94. No further action for this site. |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDATION OR MITIGATION |
|--|----------------------|--|---|--|--|----------------------------------|---|
| 21D- A/L/R/P/Y/X/P/R/P/Y/S/H/R/H S | 387 | 15,80 16,74 7,83 9,89 | Open Detonation Area (Site #16) | Disqualified, Hazardous Substance Release | Release of Explosives associated with open detonation area | 2,1,6,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | Pesticide Pits (Site #31) | Disqualified, Hazardous Substance Release | Release of Heavy metals, explosives, nitrates, pest associated with Pesticide pits | 2,1,6,22 | Soil remediation is to be completed at this site due to heavy metal contamination. Draft ROD expected to be signed 6/94 |
| | | | Pit Field Areas (Site #36) | Disqualified, Hazardous Substance Release | Release of Heavy metals, explosives, nitrates associated with pit field areas | 2,1,6,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | Smoke Canister Disposal Area (Site #13) | Disqualified, Hazardous Substance Release | Release of Explosives associated with Smoke canister disposal area | 2,1,6,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| 22Q-A/L/R | 578 | 109,77 124,80 | Building 423 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels | 26 | Low - Movable Barrier/Crt. Hl. (Good Condition) |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Cement Board Sliding | 26 | High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Radon | Asbestos Containing Material associated with Debris | 26 | High - Within Easy Reach (Poor Condition) |
| | | | | | Lead-based paint associated with structure built in 1942 | 43 | High - Within Easy Reach (Poor Condition) |
| | | | | | Radon gas present based on Concrete Sample On D1265 (Concentration=9.3 pCi/L) | 34 | |
| | | | | | Radon gas present based on Concrete Sample On D1274 (Concentration=7.3 pCi/L) | 34 | |
| | | Radon gas present based on Concrete Sample On D1291 (Concentration=16.9 pCi/L) | 34 | | | | |
| 23D-A/L/X/P/S/H/R(P) | 2 | 13,110 30,90 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| | | | Building 622 | Disqualified, Hazardous Substance Release (P) Qualified, Asbestos | Release of Explosives, heavy metals, IMPA, EMPA associated with Site 29 F Septic tank Asbestos Containing Material associated with Caulking Asbestos Containing Material associated with Gasket Asbestos Containing Material associated with Tar Paper and Tar Asbestos Containing Material associated with Vibration Isolator | 2,1,6,22 26 26 26 26 | Draft ROD expected to be signed June 1994, no further actions for this site High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) Low - Movable Barrier/Crt. Hl. (Good Condition) High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Lead Disqualified, Petroleum Storage | Lead-based paint associated with structure built in 1961 Diesel Fuel No. 2 stored in 1,000 gal UST - First used in 1965(UST 14) | 43 2,36 | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels Asbestos Containing Material associated with Roofing Shingles | 26 26 | High - Within Easy Reach (Good Condition) Low - Movable Barrier/Crt. Hl. (Good Condition) |
| | | | | | | | |
| 24D-A/L/P/S | 1 | 72,91 | Building 427 | Qualified, Asbestos | | | |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDICATION OR MITIGATION |
|---------------|----------------------|------------------------|---|--|---|--|--|
| 24D-A/L/PS | 1 | 72,91 | Building 477 | Qualified, Lead Disqualified, Petroleum Storage | Lead-based paint associated with structure built in 1942 Unknown stored in AGT(Former AGT 10) | 43 2 | |
| 25D-PS/HR(P) | 5 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 3 of 70 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 37) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| 26Q-A/L | 2 | 104,85 | Building 442 | Qualified, Asbestos Qualified, Lead | Release of GBVXX degrading products associated with GBVXX decontamination solution disposal area | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| 27Q-ZX | 199 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Asbestos Containing Material associated with Cement Board Siding Lead-based paint associated with structure built in 1942 | 26 43 | High - Within Easy Reach (Good Condition) |
| 28D-A/L/PS | 2 | 61,75 | Building 457 | Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 3 of 70 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 37) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| 29D-L/PS | 1 | 65,75 | Building 455 | Qualified, Lead Disqualified, Petroleum Storage | Asbestos Containing Material associated with Cement Board Panels Asbestos Containing Material associated with Flashing Asbestos Containing Material associated with Floor Tile (6in. x 9in.) Lead-based paint associated with structure built in 1962 Gasoline stored in UST - First used in 1950(UST 56) Unknown stored in AGT(Former AGT 8 - 1 Block (gloos)) Unknown stored in AGT(Former AGT 9 - 1 Block (gloos)) | 26 26 26 43 2,36 2 2 | High - Within Easy Reach (Poor Condition) Low - Movable Barrier/Gr. Ht. (Good Condition) High - Within Easy Reach (Good Condition) Removed |
| 30D-HR(P)/HS | 34 | 107,68 104,67 | Large Open Storage Areas (Site #51) Paint and Solvent Disposal Area (Site #67) | Disqualified, Hazardous Substance Storage Disqualified, Hazardous Substance Release (P) | Lead-based paint associated with structure built in 1962 Diesel Fuel No.2 stored in 500 gal UST - First used in 1950(UST 88) Diesel Fuel No. 2 stored in 500 gal UST - First used in 1950(UST 89) Diesel Fuel No. 2 stored in 500 gal UST - First used in 1950(UST 90) | 43 2,36 2,36 2,36 | Inactive Inactive Inactive |
| | | | | Disqualified, Hazardous Substance Storage Disqualified, Hazardous Substance Release (P) | Unknown stored in Drums(large open storage areas) Release of VOAs, BNAs, heavy metals associated with paint and solvent disposal area | 2 2,16,22 | Enhanced PA did not recommend additional investigation at this site. Draft ROD expected to be signed June 1994, no further actions for this site |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDICATION OR MITIGATION |
|---------------|----------------------|------------------------|--|---|---|---------------|---|
| 31D-4R(P) | 35 | 127,74 | Open Paint Spray Area (Site #61) | Disqualified, Hazardous Substance Release (P) | Release of VOA's, BNA's, heavy metals associated with open paint spray areas | 2,16,22 | No contaminants of concern were identified, ROD signed. |
| 32Q-L | 1 | 64,74 | Building 426 | Qualified, Lead | Lead-based paint associated with structure built in 1942 | 43 | |
| 33D-4R | 6 | 147,73 | Malathion Spray Area (Site #79) | Disqualified, Hazardous Substance Release | Release of Malathion associated with malathion spray area | 2,16,22 | No contaminants of concern were identified, ROD signed. |
| 34D-4X/HR(P) | 9 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| 35Q-4X | 2 | 28,71 | Missile Fuel Burning Areas (Site #28) | Disqualified, Hazardous Substance Release (P) | Release of Missile fuel associated with Missile fuel burning areas | 2,16,22 | This site was re-evaluated during the preparation of the SRI work plan and it was determined no sampling was necessary |
| 36Q-4X | 1 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| 37D-4X/HR | 33 | 8,63 13,110 | Active Firing Range (Site #60) Ammunition Demolition Area | Disqualified, Hazardous Substance Release Qualified, Unexploded Ordnance | Release of Heavy metals, explosives associated with active firing range Unexploded Ordnance associated with Ammunition Demolition Area | 2,16,22 17 | Draft ROD expected to be signed June 1994, no further actions for this site The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 32) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|----------------|----------------------|----------------------------|--|--|---|--|--|
| 38Q-7X | 1 | 13,110 | Ammunition Demolition Area | Qualified, Unexploded Ordnance | Unexploded Ordnance associated with Ammunition Demolition Area | 17 | The Draft ROD is expected to be signed 6/94. 5 of 20 sites within the ADA are scheduled to have soil remediation (sites 15, 17, 19, 31, 33) due to heavy metals contamination. UXO is being addressed under a phase approach in the ROD. |
| 39D-7PS | 2 | 105,63 | Underground Storage Tank 53 | Disqualified, Petroleum Storage | Diesel Fuel No. 2 stored in 1,000 gal UST - First used in 1945(UST 53) | 2,36 | Removed |
| 40D-7PS | 2 | 107,62 | Underground Storage Tank 91 | Disqualified, Petroleum Storage | Diesel Fuel No. 2 stored in 250 gal UST - First used in 1950(UST 91) | 2,36 | Inactive |
| 41D-7HR(P) | 24 | 59,59 | Former Gravel Pit/Disposal Location (Site #82) | Disqualified, Hazardous Substance Release (P) | Release of Asbestos associated with former gravel pit/disposal location | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| 42D-7L/PS | 7 | 109,61 110,60 | Building 472 Former Gas Station, USTs 59, 60, 61 & 62 (Site #4) | Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage Disqualified, Petroleum Storage | Asbestos Containing Material associated with Roofing Shingles Lead-based paint associated with structure built in 1942 Diesel fuel stored in 285 gal AGT Gasoline or Diesel Fuel No. 2 stored in 3,000 gal UST - First used in 1945(UST 59) Gasoline or Diesel Fuel No. 2 stored in 3,000 gal UST - First used in 1945(UST 60) Gasoline or Diesel Fuel No. 2 stored in 3,000 gal UST - First used in 1945(UST 61) Gasoline or Diesel Fuel No. 2 stored in 3,000 gal UST - First used in 1945(UST 62) Asbestos stored in UST - First used in 1945(Site 43 - Former Gas Station) VOCs, BNAAs, Lead, petroleum hydrocarbons stored in UST(Former gas station/possible UST) | 26 43 52 2,36 2,36 2,36 2 2, 16 | None - Permanent Barrier (Good Condition) Active Inactive Inactive Inactive Inactive |
| 43D-7L/R/PS/HR | 310 | 102,58 100,49 101,49 | Aboveground Storage Tank 26 Building 415 Building 416 | Disqualified, Petroleum Storage Qualified, Asbestos Qualified, Lead Qualified, Radon Qualified, Asbestos | Unknown stored in AGT(AGT 26 - Near RR within Washout Point) Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1942 Radon gas present based on Concrete Sample Above North East Corner - 1993 (Concentration=5.4 pCi/L) Asbestos Containing Material associated with Boiler Insulation (Nug) Asbestos Containing Material associated with Breaching Insulation (Nug) Asbestos Containing Material associated with Pipe Insulation | 2 26 43 34 26 26 26 | Low - Movable Barrier/Crit. Ht. (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X, Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|----------------------|-------------------------|--------------|---|--|------------------|---|--------|--------------|--|---|---|---|--------|--------------|--|---|----------|---|--------|--------------|---|--|---|---|--------|--------------|--|--|---------------------------------------|--|
| 43D-1A1UR/PS/HR | 310 | 101.49 | Building 416 | Qualified, Asbestos Qualified, Lead Disqualified, Petroleum Storage | (Mag) Asbestos Containing Material associated with Pipe Joints/Tees/Valves associated with structure built in 1942 Diesel Fuel No. 1 stored in 3,000 gal UST - First used in 1945(UST 9) Unknown stored in AGT(Former AGT 22) | 26 43 2,36 | Condition) High - Within Easy Reach (Good Condition) | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 101.55 | Building 417 | Disqualified, Hazardous Substance Release (P) Qualified, Asbestos | Release of Explosives, cyanides, heavy metals associated with Site 29 E septic tank Asbestos Containing Material associated with Caulking Asbestos Containing Material associated with Flashing Asbestos Containing Material associated with Pipe Insulation (Mag) Asbestos Containing Material associated with Pipe Joints/Tees/Valves Asbestos Containing Material associated with Tar Paper and Tar Asbestos Containing Material associated with Tar Paper and Tar Lead-based paint associated with structure built in 1953 | 2,16,22 26 26 26 26 26 26 43 | Draft ROD expected to be signed June 1994, no further actions for this site Low - Movable Barrier/Crt. Ht. (Good Condition) None - Permanent Barrier (Good Condition) Moderate - Partial Barrier (Poor Condition) Moderate - Partial Barrier (Good Condition) Low - Movable Barrier/Crt. Ht. (Good Condition) None - Permanent Barrier (Poor Condition) | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 102.55 | Building 418 | Qualified, Asbestos Qualified, Lead | Asbestos Containing Material associated with Flashing Lead-based paint associated with structure built in 1952 | 26 43 | Low - Movable Barrier/Crt. Ht. (Good Condition) | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | 107.58 | Building 419 | Disqualified, Hazardous Substance Release (P) Disqualified, Hazardous Substance Release Qualified, Asbestos | Release of Explosives, propellants associated with Site 29 C septic tank Release of PCB dielectric fluid (soil sample STRA044 conc=0.08 mg PCBs) associated with transformer located west of Bldg 419 Asbestos Containing Material associated with Caulking Asbestos Containing Material associated with Cement Board Siding Asbestos Containing Material associated with Flashing Asbestos Containing Material associated with Mastic Asbestos Containing Material associated with Paper Tape Asbestos Containing Material associated with Paper Tape Asbestos Containing Material associated with Pipe Insulation (Mag) Asbestos Containing Material associated with Roofing Shingles Asbestos Containing Material associated with Sheet Vinyl Asbestos Containing Material associated with Tank Insulation (Mag) Lead-based paint associated with structure built in 1942 Diesel Fuel No. 2 stored in 1,000 gal UST - First used in 1945(UST 10) Diesel Fuel No. 2 stored in UST - First used in 1950(UST 57) Oil stored in UST(UST 01) Propane stored in 1,000 gal AGT | 2,16,22 41 26 26 26 26 26 26 26 26 26 26 43 2,36 2,36 52 | Draft ROD expected to be signed June 1994, no further actions for this site None - Permanent Barrier (Good Condition) High - Within Easy Reach (Poor Condition) None - Permanent Barrier (Good Condition) None - Permanent Barrier (Good Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) Low - Movable Barrier/Crt. Ht. (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) Low - Movable Barrier/Crt. Ht. (Good Condition) High - Within Easy Reach (Good Condition) Inactive Removed Active | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 102.49 | Building 420 | Disqualified, Hazardous Substance Release (P) Qualified, Asbestos | Release of Lead, low pH associated with Site 29 C septic tank Asbestos Containing Material associated with Cement Board Panels Asbestos Containing Material associated with Cement Board Siding Asbestos Containing Material associated with Floor Tile (9in. x 9in.) Asbestos Containing Material associated with Pipe Insulation (Mag) Lead-based paint associated with structure built in 1953 | 2,16,22 26 26 26 26 43 | Draft ROD expected to be signed June 1994, no further actions for this site High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDIATION OR MITIGATION |
|-----------------|---------------------------------|--------------------------------------|---|---|--|---|---|
| 43D-A/LR/PS/HR | 310 | 109,41 | Building 431 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels | 26 | High - Within Easy Reach (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) |
| | | | | Disqualified, Hazardous Substance Release | Release of Liquid solutions associated with Site 53 sump/cistern/disposal area | | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Roofing Shingles | | |
| | 111,41 | | Building 433 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site |
| | | | | Qualified, Asbestos (P) | Asbestos Containing Material associated with Cement Board Sliding | | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Cloth Tape | | |
| | | | | Asbestos Containing Material associated with Pipe Insulation (Mag.) | Asbestos Containing Material associated with Pipe Insulation | | |
| | | | | Asbestos Containing Material associated with Pipe Joints/Tees/Valves | Asbestos Containing Material associated with Pipe Joints/Tees/Valves | | |
| | | | | Disqualified, Petroleum Storage | Heating Oil No. 5 stored in 15,194 gal UST - First used in 1945(UST 25) | | |
| | | | | Disqualified, Petroleum Storage (P) | Boiler blowdown stored in 500 gal UST - First used in 1950(UST 94) | | |
| | | | | Disqualified, Petroleum Storage (P) | Unknown stored in AGT(Former AGT 70) | | |
| | | | | Disqualified, Petroleum Storage | Unknown stored in AGT(Former AGT 18) | | |
| | | | | Disqualified, Petroleum Storage | Unknown stored in AGT(Former AGT 19) | | |
| | Disqualified, Petroleum Storage | Propane stored in 50 gal UST(UST 97) | | | | | |
| | 113,41 | | Building 434 | Qualified, Asbestos | Asbestos Containing Material associated with Cement Board Panels | 26 | High - Within Easy Reach (Good Condition) Low - Movable Barrier/Crt. Ht. (Good Condition) |
| | | | | Asbestos | Asbestos Containing Material associated with Flashing | | |
| | 102,55 | | Building 478 | Qualified, Asbestos (P) | Asbestos Containing Material associated with Cement Board Panels | 26 | High - Within Easy Reach (Poor Condition) High - Within Easy Reach (Poor Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) High - Within Easy Reach (Good Condition) |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Debris | | |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation (Mag.) | | |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Joints/Tees/Valves | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1954 | | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1953 | | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1953 | | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1953 | | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1953 | | | |
| Qualified, Lead | | | | Lead-based paint associated with structure built in 1953 | | | |
| 103,54 | | Building 482 | Disqualified, Hazardous Substance Release (P) | Release of Heavy metals associated with Site 29 D septic tank | 2,16,22 | Draft ROD expected to be signed June 1994, no further actions for this site | |
| | | | Qualified, Asbestos | Asbestos Containing Material associated with Boiler Insulation (Mag.) | | | |
| | | | Qualified, Asbestos | Asbestos Containing Material associated with Gasket | | | |
| | | | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation (Alred) | | | |
| | | | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation (Mag.) | | | |
| 103,55 | | Building 483 | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation | 26 | Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| 103,55 | | Building 484 | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | 26 | Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| 102,56 | | Building 485 | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | 26 | Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) | |
| | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation | | | |
| 103,57 | | Building 486 | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation | 26 | Low - Movable Barrier/Crt. Ht. (Poor Condition) Low - Movable Barrier/Crt. Ht. (Poor Condition) | |
| | | | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation | | | |

TABLE 5-1. Parcel Descriptions, Umatilla Army Depot

| PARCEL NUMBER | APPROX. SIZE (ACRES) | COORD (X,Y) ON FIG 5-1 | LOCATION | CATEGORY | BASIS | APP. A REF(S) | REMEDATION OR MITIGATION |
|---|---|------------------------|--------------|---|--|---|--|
| 43D-A/L/R/PSHR | 310 | 103.57 | Building 486 | Qualified, Asbestos | Joints/Tees/Valves Asbestos Containing Material associated with Tank Insulation (Mag.) | 26 43 2,36 2,36 2,36 43 26 26 26 43 43 26 43 2,16,22 2,16,22 43 26 43 2,16,22 2,16,22 2 46 | Condition) Low - Removable Barrier/Crit. Ht. (Poor Condition) Removed Removed Inactive Inactive |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1954 | | |
| | | | | Disqualified, Petroleum Storage | Heating Oil No. 5 stored in 25,049 gal UST - First used in 1945(UST 39) Diesel Fuel No. 2 stored in 1,000 gal UST - First used in 1950(UST 97) Boiler blowdown stored in 600 gal UST - First used in 1950(UST 93) Unknown stored in UST(UST 98) | | |
| | | | | Disqualified, Petroleum Storage (P) | | | |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1953 | | |
| | | | | Qualified, Asbestos (P) | Asbestos Containing Material associated with Pipe Insulation (Mag.) | | |
| | | | | Qualified, Lead | Asbestos Containing Material associated with Pipe Insulation (Mag.) (Assessed Material) | | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Vibration Isolator | | |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1963 | | |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1953 | | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Pipe Insulation (Mag.) | | |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1953 | | |
| | | | | Disqualified, Hazardous Substance Release (P) | Release of Cyanide associated with Bldg 493 Brass cleaning operation | | |
| | | | | Disqualified, Hazardous Substance Release | Release of VOAs, BNAs, heavy metals associated with Bldg 493 paint sludge discharge | | |
| | | | | Qualified, Lead | Lead-based paint associated with structure built in 1953 | | |
| | | | | Qualified, Asbestos | Asbestos Containing Material associated with Caulking | | |
| Qualified, Lead | Lead-based paint associated with structure built in 1953 | | | | | | |
| Disqualified, Hazardous Substance Release (P) | Release of Explosives, heavy metals associated with Coyote Coulee discharge gullie | | | | | | |
| Disqualified, Hazardous Substance Release | Release of Nitrate, explosives associated with Explosive washout lagoons | | | | | | |
| Disqualified, Hazardous Substance Release | Release of Explosives, nitrates associated with explosive washout plant/Building 48 | | | | | | |
| Disqualified, Petroleum Storage | Unknown stored in AGTF(Former AGT 72 - Beaver Road) | | | | | | |
| Disqualified, Hazardous Substance Release | Release of RDX associated with groundwater plume 1 | | | | | | |