United States
Environmental Protection
Agency

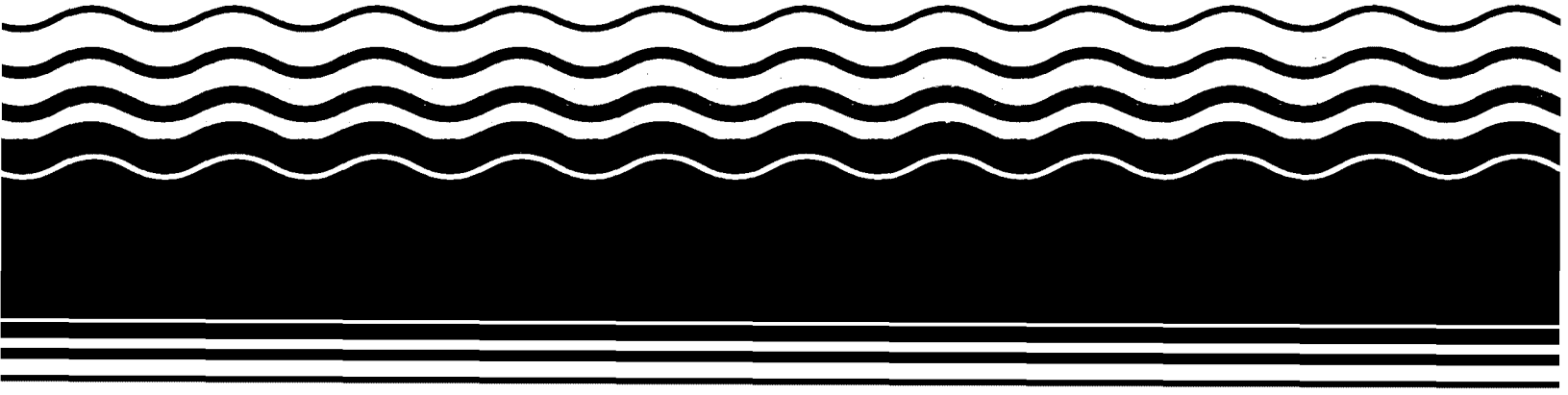
Office of
Emergency and
Remedial Response

EPA/ROD/R08-93/077
September 1993

EPA

Superfund Record of Decision:

Rocky Mountain Arsenal (Operable Unit 27), CO



50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R08-93/077	2.	3. Recipient's Accession No.

4. Title and Subtitle
SUPERFUND RECORD OF DECISION
Rocky Mountain Arsenal (Operable Unit 27), CO
Twelfth Remedial Action

5. Report Date 09/23/93

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address

10 Project Task/Work Unit No.

11. Contract(C) or Grant(G) No.
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(G)

12. Sponsoring Organization Name and Address
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

13. Type of Report & Period Covered
800/800

14.

15. Supplementary Notes
PB94-964409

16. Abstract (Limit: 200 words)

The Rocky Mountain Arsenal (Operable Unit 27) site is part of the 17,000-acre former U.S. Army chemical warfare and incendiary munitions manufacturing and assembly plant in Adams County, Colorado. From the 1950s until late 1969, the Army used the Rocky Mountain Arsenal (RMA) facility to produce the nerve agent GB (isopropylmethyl-phosphonofluoridate). Between 1947 and 1982, private industries leased major portions of the plant facilities to manufacture various insecticides and herbicides. Since 1970, Army facility operations primarily have involved the destruction of chemical warfare materials. Because final remediation of the RMA site will take many years to complete, 13 interim response actions (IRAs) were determined necessary prior to implementing the final ROD. OU27, which is one of these 13 IRAs, contains 41 inactive underground storage tanks (USTs) at the RMA. These USTs were used to store fuel and raw materials used in the manufacturing processes at the facility. With the exception of the USTs at the motor pool, all of the USTs at the RMA have been inactive since 1982, but they may be releasing hazardous substances to the environment. This ROD addresses the 41 inactive USTs at the RMA and will facilitate the final remedy for these USTs by mitigating the continuing release or threat of release of hazardous waste

(See Attached Page)

17. Document Analysis a. Descriptors
Record of Decision - Rocky Mountain Arsenal (Operable Unit 27), CO
Twelfth Remedial Action
Contaminated Media: soil, debris
Key Contaminants: organics (petroleum)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 47
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse*

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

Abstract (Continued)

to the environment. The primary contaminant of concern affecting the soil and debris is petroleum, an organic.

The selected remedial action for this site includes purging and decontaminating the tanks of any liquids and sludge using high-pressure, hot water, and detergent spray; excavating around and removing the tanks; transporting the tanks offsite to be cut up and discarded or sold as scrap; sampling and analyzing the soil directly beneath the removed tanks for contamination; and excavating and shipping any contaminated soil offsite for treatment and disposal. No present worth or O&M costs were provided for this remedial action.

PERFORMANCE STANDARDS OR GOALS:

Not provided.

DEPARTMENT OF THE ARMY
PROGRAM MANAGER FOR ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO 80022 -1748

September 23, 1993

REPLY TO
ATTENTION OF:
Interim Response Branch

Mr. Connally Mears
U.S. Environmental Protection Agency
Region VIII
Mail Code 8HWM-FF
999-18th Street, Suite 500
Denver, Colorado 80202-2466

Dear Mr. Mears:

This letter serves OU27 to advise you of the finalization of the Decision Documents for the PCB and UST Interim Response Actions at Rocky Mountain Arsenal. Since no dispute was raised, the Draft Final Decision Documents that were issued on June 4, 1993, will serve as the Final Decision Documents. Due to typographical errors in the PCB and UST Draft Final Decision Documents, the Final Decision Documents with the appropriate white covers and corrections are enclosed. No technical changes were made to either Draft Final Decision Document.

Point of contact for this action is Mr. Bruce M. Huenefeld at (303) 289-0239.

Sincerely,

Charles T. Scharmann
RMA Committee Coordinator

Enclosure

Readiness is our Profession

Copies Furnished:

Captain Jonathan Potter, Litigation Attorney, Rocky Mountain Arsenal Building 111, Commerce City, Colorado 80022 (w/encl)
Mr. Bradley Bridgewater, U.S. Department of Justice, 999-18th Street, Suite 501, North Tower, Denver, Colorado 80202 (w/encl)
Mr. Sheldon Muller, Assistant Regional Counsel, U.S. Environmental Protection Agency, One Denver Place, Suite 500, 999-18th Street, Denver, Colorado 80202-2405 (w/encl)
Mr. Gene Czyzewski, CDM Federal Programs Corporation, 1626 Cole Boulevard, Suite 100, Golden, Colorado 80401 (w/encl)
Document Tracking Center, AMXRM-IDT, Room 132, Building 111, Rocky Mountain Arsenal, Commerce City, Colorado 80022 (w/encl)

TECHNICAL SUPPORT FOR ENVIRONMENTAL
CLEANUP PROGRAMS AT
ROCKY MOUNTAIN ARSENAL

FINAL
ASSESSMENT/DECISION DOCUMENT
UNDERGROUND STORAGE TANK
MONITORING AND REMOVAL
Version 1.0

AUGUST 1993
CONTRACT NO. DAAA05-92-D-0002, DELIVERY ORDER 0001
TASK ORDER #92-07

Prepared by:
EBASCO SERVICES INCORPORATED
James M. Montgomery
International Dismantling & Machinery
Hazen Research Ageiss Environmental, Inc.
DataChem B.C. Analytical

Prepared for:
PROGRAM MANAGER'S OFFICE
ROCKY MOUNTAIN ARSENAL

PROGRAM MANAGER FOR
ROCKY MOUNTAIN ARSENAL

U.S. ARMY
MATERIEL COMMAND

— COMMITTED TO PROTECTION OF THE ENVIRONMENT —

FINAL
ASSESSMENT/DECISION DOCUMENT
UNDERGROUND STORAGE TANK
MONITORING AND REMOVAL
Version 1.0

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EBASCO SERVICES INCORPORATED
James M. Montgomery
International Dismantling & Machinery
Greystone Environmental
Hazen Research
DataChem BC Analytical

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirements
CDH	Colorado Department of Health
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
DOI	Department of the Interior
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
GC	gas chromatograph
IRA	Interim Response Action
ml	milliliter
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RL	reporting limits
RMA	Rocky Mountain Arsenal
ROD	Record of Decision
TMV	toxicity, mobility, or volume
UST	Underground Storage Tank

1.0 INTRODUCTION

The Interim Response Action (IRA) alternatives assessment and decision process for the underground storage tanks (USTs) at the Rocky Mountain Arsenal (RMA) will be a discrete element of the Chemical Process-Related Activities IRA. This UST IRA will be conducted as part of the IRA process for RMA in accordance with the Federal Facility Agreement (FFA) and the Technical Program Plan. As specified in the FFA, an IRA must be consistent with and contribute to the efficient performance of the Final Remedy selected in the Record of Decision (ROD).

Alternatives have been reviewed based on their overall protectiveness of human health and the environment; compliance to the maximum extent practicable with Applicable or Relevant and Appropriate Requirements (ARARs); reduction in toxicity, mobility, or volume; short-term and long-term effectiveness; implementability; and cost-effectiveness. The preferred alternative consists of cleaning and removing the USTs and disposing of them by cutting them up for scrap.

2.0 BACKGROUND

The Rocky Mountain Arsenal occupies more than 17,000 acres (approximately 27 square miles) in Adams County, directly northeast of metropolitan Denver, Colorado. The property was purchased by the United States government in 1942 and was used during World War II to manufacture and assemble chemical warfare materials, such as mustard and lewisite, and incendiary munitions. As part of the manufacturing process USTs were installed at various locations to provide storage of raw materials, act as catch and overflow basins, supply fuel, and provide temporary storage while process systems were being cleaned. Since 1970, RMA has primarily been involved with the destruction of chemical warfare materials. In addition to these military activities, between 1947 and 1982 major portions of the plant facilities were leased to private industries, including Shell Oil Company, for the manufacture of various insecticides and herbicides.

In February 1989, an FFA was entered into among the following five federal agencies: the U.S. Environmental Protection Agency (EPA), the Army, the Department of Interior (DOI), the Department of Health and Human Services, and the Department of Justice, which established a framework for implementing the RMA cleanup program. The FFA specifies 13 IRAs determined to be necessary and appropriate. Subsequently, the Chemical Process-Related Activities IRA was added to the original 13. The remediation of USTs is a discrete element of the Chemical Process-Related Activities IRA.

2.1 DEFINITIONS

A UST as defined in the Resource Conservation and Recovery Act (RCRA) Part 280 is any one tank or combination of tanks (including underground piping connected to the tank) used to contain an accumulation of regulated substances, with 10 percent or more of the total volume (including volume of underground pipes connected thereto) beneath the surface of the ground. A tank is defined as a stationary device designed to contain an accumulation of regulated substances and is constructed of non-earthen materials, such as concrete, steel, or plastic, that provides structural support.

"Regulated substances" include: (1) any substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), except any substance regulated as hazardous waste under the RCRA Subtitle C; and (2) petroleum including crude oil and any fraction of crude oil that is liquid at standard temperature and pressure. The term regulated substances includes but is not limited to petroleum and petroleum derived substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, inversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oil, residual fuel oils, lubricants, petroleum solvents, and used oils.

A "hazardous substance system" is a UST system that contains a hazardous substance defined in section 101(14) of CERCLA, but not including any substance regulated as a hazardous waste under RCRA Subtitle C or any mixture of regulated substances and petroleum which is not a petroleum UST system. A "hazardous waste system" is a UST system that contained or contains a hazardous waste as defined in Subtitle C of RCRA.

2.2 USTs AT RMA

This IRA includes all USTs used in the manufacturing process of chemicals and munitions products, operations of facilities, and maintenance of RMA. Tables 2-1, 2-2, 2-3, and 2-4 identify the tanks that are included in this IRA and their classification as petroleum, hazardous substance/hazardous waste systems, and nonregulated substances. Figures 2-1, 2-2, and 2-3 show tank locations in North Plants, South Plants, and the Rail Yard.

Table 2-1 Petroleum Underground Storage Tanks

Tank Count	Tank No.	Bldg. No.	Northing	Easting	Approximate Size (Gal)
-1	0242D*	242	180180	2183246	1,165
2	0256*	256	180085	2182817	3,500
3	NN0201**	321	179617	2182970	12,000
4	T0001	329	179238	2182756	12,000
5	T0002	329	179238	2182767	12,000
6	T0002	461	178830	2184538	NA
7	T0001	627	177328	2172700	1,100
8	T0001*	629	177537	2172900	12,000
9	T0002*	629	177537	2172862	12,000
10	T0003*	629	177537	2172826	9,000
11	T0004*	629	177563	2172796	NA
12	T0002	632	176258	2172835	40,000
13	T0001*	833	185567	2183405	1,000
14	T0001	836	191312	2184074	NA
15	T0004	836	178426	2193821	250
16	T0001	SEC 0901	170652	2172315	475
17	008540	SEC 1201	170587	2183974	1,500
18	NN2504	NN2504	186089	2187102	NA

* Tank registered with state, as a petroleum tank
** Tank possibly contained hazardous substance during operation - Tank registered with state as a petroleum tank
*** Tank is removed
NA Not Available

Table 2-2 Hazardous Substance/Hazardous Waste Underground Storage Tanks

Tank Count	Tank No.	Bldg. No.	Northing	Easting	Approximate Size (Gal)
1	T0001	TF0105	180442	2185291	NA
2	T0002	TF0105	180466	2185259	NA
3	T1578	TF0105A	180448	2185250	NA
4	T1605	TF0105A	180480	2185402	NA
5	T0001	TF-108	179920	2184594	NA
6	T1575	0316A	179892	2184099	850
7	T0003	0329	179244	2182729	10,000
8	T0001	0424A	179400	2184444	NA
9	T1576	451	179530	2184580	880
10	T1577	472	179349	2184731	880
11	T0001	509	180294	2184871	NA
12	T1582	514	180155	2184565	5,875
13	T0001	515	180085	2184148	4,400
14	T1583	515	180091	2184184	4,500
15	T1579	515A	179985	2184156	500
16	T1585	517	180045	2184366	8,565
17	T0001	521	179904	2184724	NA
18	T0001	727	180084	2185429	NA
19	T1603	729	180134	2185829	500
20	T0005	742A	179598	2185979	NA
21	T0011	1803	187895	2187110	6,340
22	T0002	1712	187795	2186942	264

NA Not Available

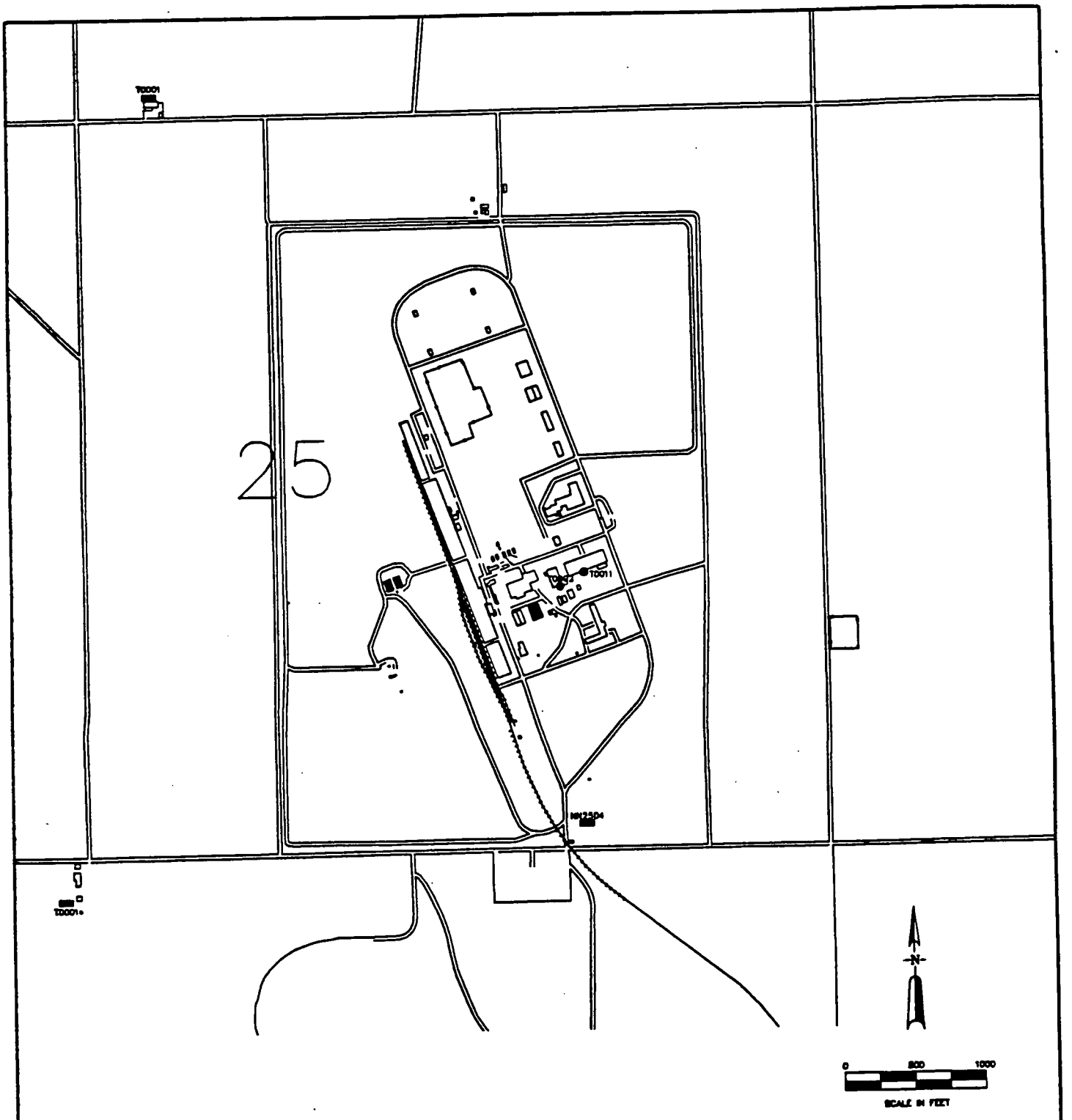
Table 2-3 Nonregulated Underground Storage Tanks

Tank Count	Tank No.	Bldg. No.	Northing	Easting	Approximate Size (Gal)
1	T0001	633	175999	2172998	285

Table 2-4 Registered Underground Storage Tanks

Tank Count	Tank No.	Bldg. No.	Northing	Easting	Approximate Size (Gal)
1	0242D	242D	180180	2183246	111,165
2	0256	256	180085	2182817	3,500
3	NNT0201	321	179617	2182970	12,000
4	T0001	629	177537	2172900	12,000
5	T0002	629	177537	2172862	12,000
6	T0003	629	177537	2172826	9,000
7	T0004	629	177563	2172796	NA
8	T0001	833	185567	2183405	1,000

NA Not Available



Legend

T0001 Petroleum Underground Storage Tank

T0002 Hazardous Substance Waste Undergound Storage Tank

* Petroleum Tank Registered with State

Prepared for:

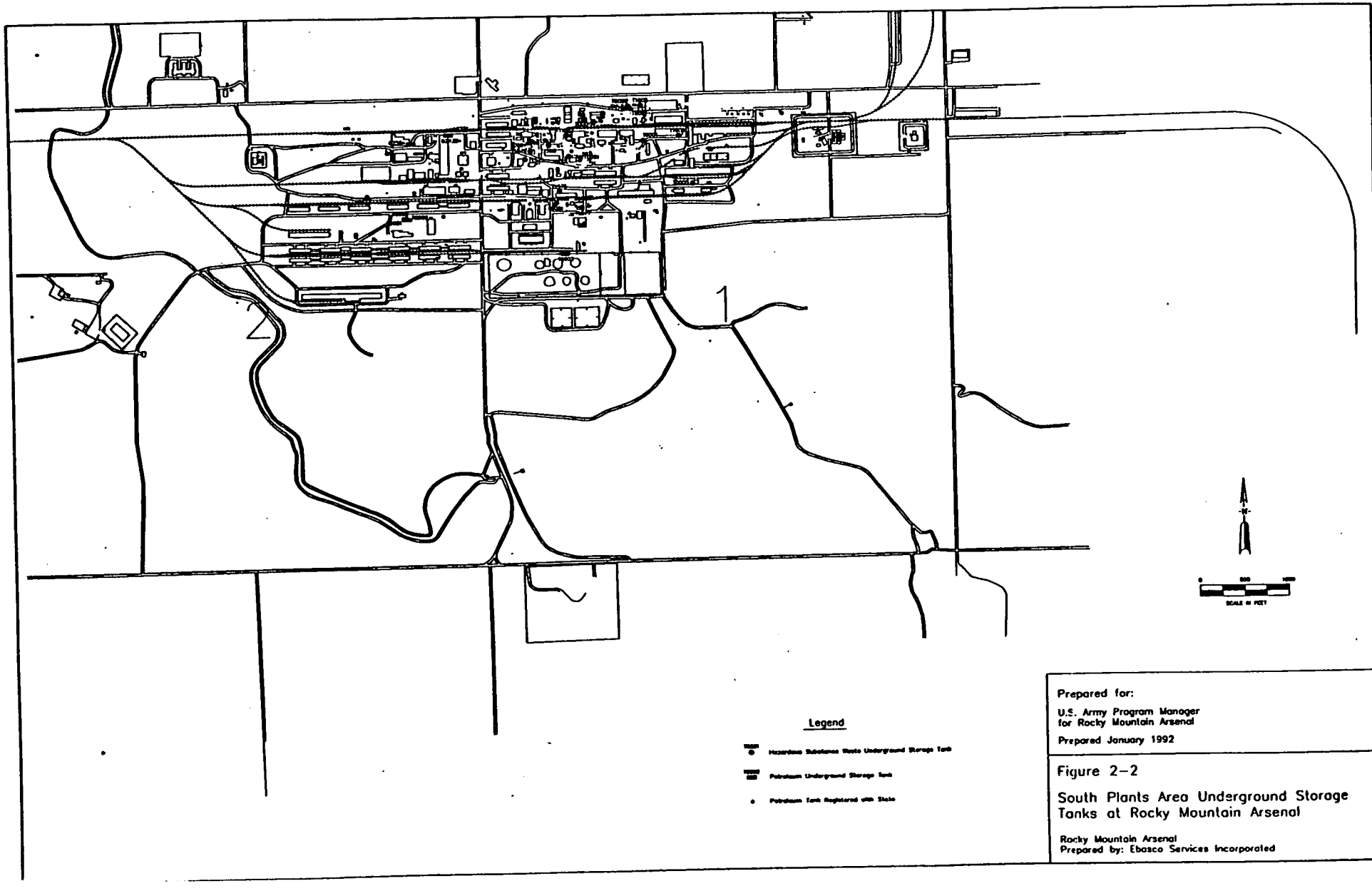
U.S. Army Program Manager
for Rocky Mountain Arsenal

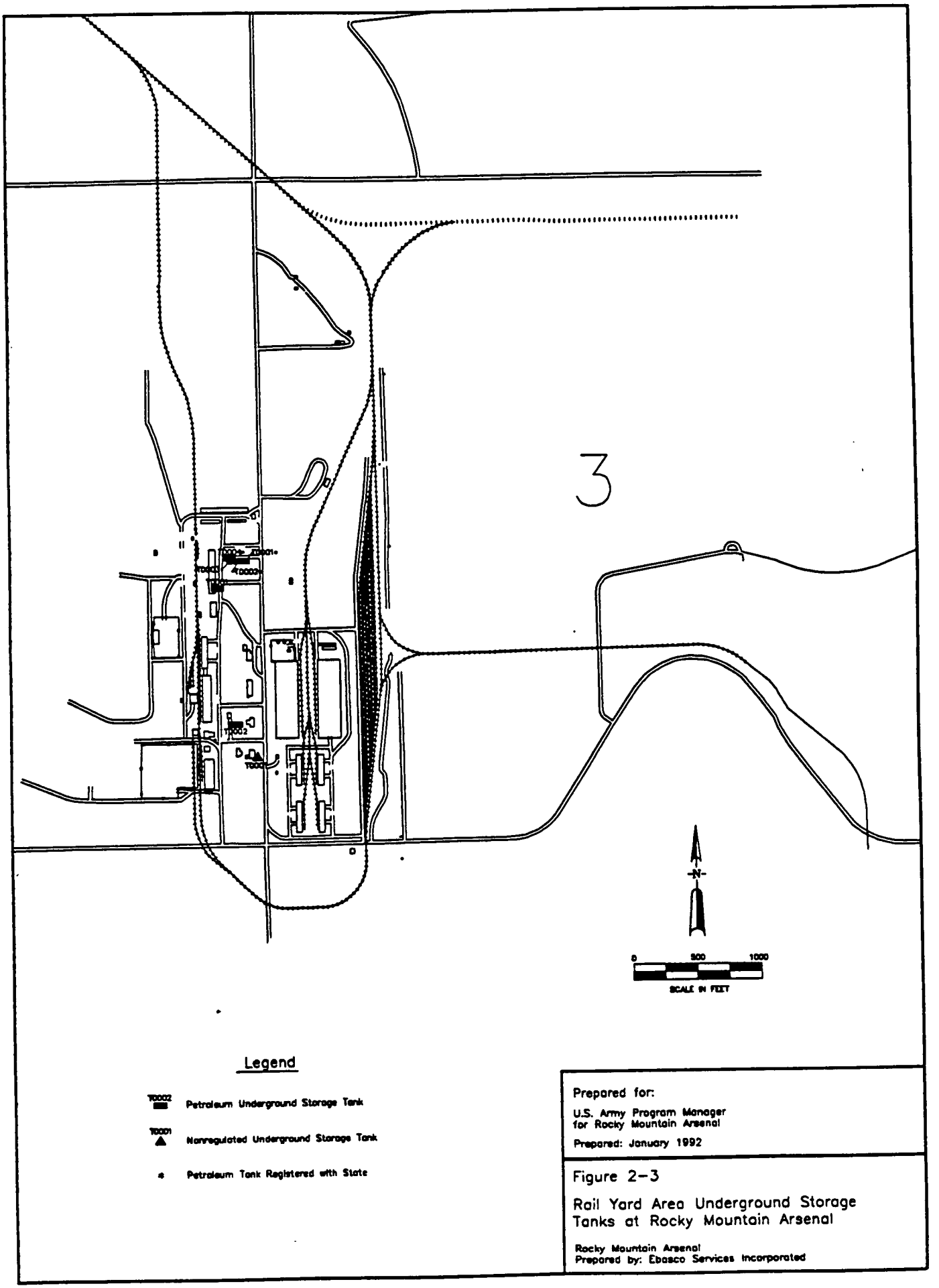
Prepared: January 1992

Figure 2-1

North Plants Area Underground Storage Tanks at Rocky Mountain Arsenal

Rocky Mountain Arsenal
Prepared by: Ebasco Services Incorporated


Legend
Prepared for:
U.S. Army Program Manager
for Rocky Mountain Arsenal
Prepared January 1992
Figure 2-2
South Plants Area Underground Storage Tanks at Rocky Mountain Arsenal
Rocky Mountain Arsenal
Prepared by: Ebasco Services Incorporated



Prepared for:
U.S. Army Program Manager
for Rocky Mountain Arsenal
Prepared: January 1992

Figure 2-3

Rail Yard Area Underground Storage Tanks at Rocky Mountain Arsenal

Rocky Mountain Arsenal
Prepared by: Ebasco Services Incorporated

3.0 INTERIM RESPONSE ACTION OBJECTIVE

The objectives of an IRA include mitigating the continuing release or threat of release of hazardous substances or wastes to the environment, providing protection of human health, facilitating the implementation of the final remedy, and ensuring, to the maximum extent practicable, compliance with legal and regulatory standards, criteria, or limitations.

The alternatives assessment for USTs, as presented in this decision document, assesses whether immediate action at the UST sites is appropriate, evaluates several IRA alternatives, and recommends an alternative to mitigate the threat of release from the USTs on an interim basis, pending determination of the final remedy in the Onpost ROD.

To meet the objectives of an IRA, the identified alternatives were evaluated based on the following criteria:

- Overall protectiveness of human health and the environment
- Compliance with ARARs to the maximum extent practicable
- Reduction of toxicity, mobility, or volume (TMV)
- Short-term and long-term effectiveness
- Implementability
- Cost

4.0 INTERIM RESPONSE ACTION ALTERNATIVES

This section evaluates the IRA alternatives for managing USTs at RMA. These alternatives include:

- No action
- Removal of tank and off-site disposal
- Clean and fill with inert material in place

The IRA alternative assessment concludes that a long-term technical and cost benefit exists if the USTs are removed prior to the completion of the ROD. Removing the USTs eliminates the potential for leakage of contaminants to the environment. In addition, by eliminating extraneous equipment, the ROD can focus on the contamination of environmental media at RMA.

4.1 NO ACTION

With the no action alternative nothing is done to stabilize or remove the USTs, and could be easily implemented at no cost. This option does not comply with ARARs because USTs are left in the ground, some containing regulated or hazardous substances and having been inactive for a period of greater than 12 months. This alternative has no short-term impacts but also has no long-term effectiveness, and does not reduce TMV of contaminants. Also, these tanks, which contain hazardous substances, are a potential threat to human health and the environment if they leak; therefore the no action alternative is not considered protective of human health and the environment.

4.2 REMOVAL OF TANK AND OFF-SITE DISPOSAL

This alternative consists of purging all liquids and sludges from the tank, cleansing the tank with high-pressure hot water detergent spray, excavating around the tank to expose it, removing the tank from the ground, and sending the tank off site to be cut-up and discarded or sold as scrap.

After the tank is removed, at least three soil samples would be taken directly beneath the tank. Should the samples indicate contamination of the soil, the remedial action for petroleum-

contaminated soils would be excavation of the soil. Petroleum-contaminated soils would then be transported to an off-site facility approved to treat such soil.

If contamination is part of a larger contaminated site that will be addressed as part of the ROD, it would be more effective to leave those soils in place. If the contamination appears to be an isolated spot that is not planned to be addressed as part of the ROD, it would be more effective to excavate those soils during the UST removal program.

This alternative would be protective of human health and the environment and reduce TMV since the potential for contaminant migration is eliminated by removing the tank. It would achieve ARARs, is readily implementable with standard construction equipment, and is consistent with the final remedy since petroleum-contaminated soils would be removed and treated, and soils contaminated with hazardous wastes or hazardous substances would be remediated as part of the final cleanup. There would be minimal short-term impacts since the tank contents would be removed and the tanks cleaned prior to excavation. Worker safety would be addressed through prudent work practices and the proper use of personal protective equipment. No short-term impacts on the community would be expected. This alternative would provide long-term effectiveness because, in the case of petroleum-contaminated soil, the tanks are removed and contaminated soil is treated immediately. If the soil is contaminated with hazardous substances or wastes, the soil is capped using a liner and backfill for subsequent remediation during implementation of the overall RMA cleanup. Costs for this alternative, while higher than the other alternatives considered, are moderate.

4.3 CLEAN AND FILL TANK WITH INERT MATERIAL

This alternative consists of purging all liquids and sludges from the tank, cleansing the tank with high-pressure hot water detergent spray, and filling the tank with inert material. Soil borings would be required to assess whether or not the tank has leaked and contaminated the surrounding soil.

If the analyses from the soil borings indicate contamination of the soil, the remedial action for petroleum-contaminated soils would require removal of the tank prior to excavating the contaminated soil. Petroleum-contaminated soil would be transported to an off-site facility approved to treat such soil.

Should soil contamination exist beneath tanks containing hazardous substances or wastes, the contaminated soil would be left in place and capped, addressed in the Feasibility Study or as an addendum to the ROD, and remediated as part of the overall contaminated soils remediation at RMA.

This alternative would be protective of human health and the environment and reduce TMV since the potential for contaminant migration is minimized by removing the remaining liquid in the tank and the potential for leaching out of the tank is eliminated by filling it with an inert material. If soil contamination exists, however, the tank would need to be removed before the contamination can be addressed. Thus, cost savings would not be realized in this case. This alternative would achieve ARARs, and is readily implementable with standard construction equipment. It is consistent with the final remedy since petroleum-contaminated soils would be removed and treated, and soils contaminated with hazardous wastes or hazardous substances would be remediated as part of the final remedy. There are minimal short-term impacts since the tank contents would be removed and the tanks cleaned prior to filling with an inert material. Worker safety would be addressed through prudent work practices and the proper use of personal protective equipment. No short-term impacts on the community would be expected. This alternative would provide long-term effectiveness because, in the case of petroleum-contaminated

soil, the tanks are cleaned and filled with an inert material and contaminated soil is treated immediately. If the soil is contaminated with hazardous substances or wastes, the soil is left as is for subsequent remediation during implementation of the overall RMA cleanup.
This alternative complicates the remediation of contaminated soil because the tank is still in the ground. It is less costly to decommission the tank by filling it with inert material, but in the long term, if contamination is present or the tank impedes the soil remediation plan for RMA, the tank may have to be removed, thus creating additional costs.

4.4 CONCLUSIONS

The three alternatives were evaluated according to the following criteria in Sections 4.1 – 4.3:

- Overall protectiveness of human health and the environment
- Compliance with ARARs
- Reduction of TMV
- Short-term and long-term effectiveness
- Implementability
- Cost

The comparative analysis of the alternatives relative to these items is presented below.

4.4.1 Overall Protectiveness of Human Health and Environment, Compliance with ARARs, and Reduction of TMV

Removing the tanks, or cleaning and filling the tanks with inert material provide equal protection of human health and the environment because all product remaining in the tanks is removed. These two alternatives comply with ARARs because 40 CFR 280.70(c) states that these are the only two permitted closure options for USTs. Both of these alternatives reduce the TMV of contamination, although tank removal makes it easier to verify the degree of soil contamination under the tanks, and easier to remediate any contaminated soils. Because product may remain in some tanks, and contaminated soil may be present beneath some tanks, no action is not as

protective of human health and environment, it does not achieve ARARs, and it does not reduce TMV.

4.4.2 Short-Term and Long-Term Effectiveness and Implementability

Short-term effectiveness—the period of time required to achieve protection and the potential adverse impacts during implementation—is similar for the tank removal and cleaning/filling alternatives, although greater worker protection against physical hazards would be required for tank removal. Neither of these alternatives is expected to adversely impact the environment, RMA personnel, or the community. Because no action does not involve any remedial activities there are potential impacts should the no action alternative be selected.

Removal of the tanks has slightly greater long-term effectiveness than the option of cleaning and filling the tanks with inert material. If contamination exists in the soil beneath the tanks, they would already have been removed and the petroleum-contaminated soil would be treated immediately. In addition, removal of the tanks will ensure that their presence does not hinder the implementation of the overall RMA cleanup. Clean and fill with inert material is a viable alternative, however, it is not the best alternative for RMA. Both these alternatives are superior to the no action alternative for long-term effectiveness.

All alternatives are easily implementable. The tank removal and the cleaning/filling alternatives are both permanent solutions as required by 40 CFR 300.430 (f) (1). Both the tank removal and cleaning/filling alternative can be performed using standard commercially–available equipment. If contamination is present in soils beneath the tanks, the tank removal alternative would be more implementable with respect to remediation of these soils.

4.4.3 Cost

No action is the lowest cost alternative. Removal of the tanks is more costly than cleaning and filling with inert material, but if contamination is present in soils under the tanks or the tanks are in the way of the overall RMA cleanup, the tanks would have to be removed. The initial cost

savings provided by cleaning and filling with inert material may be eroded in the long term, and this alternative could actually cost more than removing the tanks.

4.4.4 Summary

No action is only superior in terms of cost. Tank cleaning and filling is a viable alternative, but if contaminated soils are found beneath the tanks, this alternative may cost more in the long term than tank removal. Removing the tanks would prevent any future potential for leakage and contribute to the efficient implementation of the final remedy. Removal of the tanks is therefore the preferred alternative.

5.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

These ARARs address the removal of USTs prior to the issuance of an ROD for the Onpost Operable Unit of RMA. The response action described in this document is interim, subject to further remediation, if required and identified in the Onpost ROD.

5.1 UST CLOSURE JUSTIFICATION

The USTs at RMA, except for the tanks in the motor pool (629-1-2-3, and -4), have been out of service since 1982.

Regulation 40 CFR 280-70 requires that USTs, managing petroleum or CERCLA hazardous substances) and temporarily closed for more than 12 months must be permanently closed, unless they meet certain specific performance standards for new UST systems (as defined in 40 CFR 280.20) or upgrading requirements (as defined in 40 CFR 280.21). Upgrading existing tanks is not an option at RMA because there are no future uses planned for the tanks.

Tanks that contain hazardous waste are regulated under 40 CFR 264 Subpart J. Existing hazardous waste tanks are required to have secondary containment meeting the requirements of 40 CFR 264.193 or must be assessed to determine if they leak or are unfit for service. The assessment must be reviewed and certified by an independent, qualified, registered engineer. According to 40 CFR 264.196, if a tank is unfit for use or has had a leak or spill, it must be immediately filled with inert material.

5.2 CLASSIFICATION OF SUBSTANCES IN USTs AT RMA

Available information on the contents of the USTs at RMA indicates that the tanks currently contain petroleum products, CERCLA hazardous substances, RCRA hazardous wastes, and non-regulated substances. Tanks containing petroleum products and CERCLA hazardous substances are normally subject to UST regulations in 40 CFR Part 280. However, because many of the tanks have been out of service for more than 10 years, the materials remaining in the tanks can be considered discarded materials, and therefore RCRA solid waste. The contents of the tanks

must be analyzed to determine if the tanks that contain petroleum products, CERCLA hazardous substances, or unregulated substances also contain RCRA hazardous wastes. This determination must be made using the information contained in 40 CFR 261 Subparts C and D. Hazardous waste tanks are subject to regulation under RCRA according to 40 CFR 264 Subpart J.

5.3 CLOSURE OF USTs AT RMA

If analysis of the materials in the USTs reportedly holding petroleum or CERCLA hazardous substances indicates that the material is not a RCRA hazardous waste, the tanks may be permanently closed under the requirements of 40 CFR 280.71. This closure requires the removal of all liquids and sludges from the tank. The tanks may be permanently taken out of service by either removing the tank from the ground or filling the tank with inert solid material. Before permanent closure is complete, sampling to measure for the presence of a release where contamination is mostly likely to occur at a UST site must be conducted according to 40 CFR 280.72. If contaminated soils or groundwater, or free product is discovered, corrective action must be taken in accordance with 40 CFR 280 Subpart F and Colorado UST Regulations CRS 25-18, 7 CCR 1101-14, and 6 CCR 1007-5. Corrective actions may include, but not be limited to, the following:

- Remove regulated substance to prevent further release
- Prevent further migration of release into surrounding soils and groundwater
- Monitor and mitigate fire and safety hazards posed by vapors or free product
- Remedy hazards posed by exposed contaminated soil
- Remove free product from the soil or groundwater to minimize spread of contamination
- Conduct investigation of release extent if
  - Free product is found
  - Groundwater contamination is known or suspected
  - Implementing regulatory agency requires

- Clean up contaminated soil and groundwater
- Implement corrective action plan

Colorado UST regulations (CRS 25-18, 7 CCR 1101-14, and 6 CCR 1007-5) are essentially the same as the requirements in 40 CFR Part 280.

In portions of RMA (e.g., South Plant and North Plant) where final remedial actions may include removal of soil and groundwater contamination, a waiver of the soil and groundwater corrective action requirements in 40 CFR 280 Subpart F may be invoked as provided in CERCLA Section 121(d)(4)(A). A separate waiver must be invoked for each ARAR that will not be attained. In those areas where the waiver is requested, the known soil/groundwater contamination should be similar to the contents of the UST. Outside those areas where remedial actions are planned, soil and groundwater remediation will take place as part of the UST closure procedures.

The closure requirements of 40 CFR 264.197 are applicable for tanks containing hazardous wastes and for tanks reportedly holding petroleum or hazardous substances that should be classified as RCRA hazardous waste based on chemical analysis. All waste and equipment will be managed as hazardous waste, including contaminated soil. If it is not possible to remove all contaminated soil from a hazardous waste tank site, post-closure care of the site as a landfill will be required.

5.4 PROPER CLOSURE REQUIREMENTS

Sampling of soil (and possibly groundwater) must be completed at the location where contamination from the UST is most likely to be present, as required in 40 CFR 280.72(a), before the UST site can be considered closed. If sample analysis indicates no media contamination is present, the UST site is considered closed. If contamination is detected in the soil or groundwater and the UST site is located in an area where no CERCLA remedial action is proposed, corrective action must be taken to bring the contamination to acceptable levels. If the media are contaminated and the UST site is located in an area where CERCLA remedial actions

are proposed, soil and groundwater cleanup activities related to the UST can be part of the final remedial action under a waiver provided for by CERCLA Section 121(d)(4)(A).

6.0 SUMMARY OF THE INTERIM RESPONSE ACTION

Removal of the USTs is the chosen alternative. This is an easily implementable and cost-effective solution that is protective of human health and the environment and that provides long-term effectiveness because the threat of release from USTs is eliminated.

All USTs identified in Tables 2-1, 2-2, and 2-3 at RMA will be removed under this IRA. The work is to be implemented in phases. Phase 1 is the removal of the eight USTs registered with the State of Colorado as petroleum storage tanks. Phase 2 is the removal of the remaining petroleum storage tanks not registered with the State of Colorado. The remaining phases will be implemented when other work in these areas has been completed, thus allowing the removal of the USTs.

6.1 TANK REMOVAL WORK PLAN

A work plan will be developed that outlines the steps to be taken in removing each underground storage tank. This plan will include guidelines on purging the remaining liquids in the tank, cleaning the tank, and disposing of fuel product, cleaning water, piping, tank, and contaminated soil. The plan will follow the state regulations regarding soil sampling tank removal.

6.2 HEALTH AND SAFETY PLAN

A Health and Safety Plan has been developed for the prevention of occupational injuries and illnesses during field activities at RMA. This plan addresses health and safety requirements of contractors and their authorized subcontractors. Compliance with this plan will be compulsory, and the contractors will be responsible for self-enforcement and compliance. The Health and Safety Plan was developed taking into consideration known hazards as well as potential risks. Comprehensive environmental monitoring and site-specific personal protection are combined in an effort to best protect workers. A site-specific Health and Safety Plan for work to be performed during implementation of this IRA will be developed.

7.0 INTERIM RESPONSE ACTION PROCESS

With respect to the IRA for the Process Equipment Removal, Addendum 003: UST Removal and Monitoring at RMA, the IRA process for the USTs is summarized as follows:

- The organizations and DOI shall have the opportunity to participate, at the RMA Committee level, in the identification and selection of ARARs that may be applicable to IRAs.

- The Army shall issue the proposed Decision Document for the UST Removal IRA, for a 30-day public comment period. The proposed Decision Document is supported by an administrative record.

- Promptly after the close of the comment period, the Army shall transmit to the other organizations, DOI, and the State a Draft Final IRA Decision Document for the UST Removal.

- Within 20 days after the issuance of a Draft Final IRA Decision Document for the UST Removal, an organization (including the State if it has agreed to be bound by the Dispute Resolution process, as required by the FFA, or DOI under the provisions set forth in the FFA) may invoke Dispute Resolution.

- After the close of the period for invoking Dispute Resolution, if Dispute Resolution is not invoked, or after the completion of Dispute Resolution, if invoked, the Army shall issue a Final IRA Decision Document to the other organizations, the DOI, and the State. The Army shall also notify the public of the availability of the Final IRA Decision Document with the supporting administrative record. Only preliminary design work for the IRA may be conducted prior to the issuance of the Final IRA Decision Document.

- The IRA Decision Document for the UST Removal will be subject to judicial review in accordance with Section XXXIX of the FFA except where such review is barred by Sections 113 and 121 of CERCLA, as amended, 42 U.S.C. Sections 6913 and 9621.

- Following issuance of the final IRA Decision Document, the Army shall be the Lead Party responsible for designing and implementing the IRA in conformance with the Decision Document. The Army shall issue draft IRA Implementation Letters to the DOI, the State, and the other organizations for review and comment. The draft Implementation Letter shall include a final workplan, the identified tanks, a cost estimate, if applicable, and IRA deadlines for implementation.

- If any organization (including the State) or the DOI believes that the IRA is being designed or implemented in a manner that will not meet the objectives for the IRA set forth in the Final IRA Decision Document, or is otherwise not being properly implemented, it may so advise the others and shall recommend how the IRA should be

properly designed or implemented. Any organization (including the State, if it has agreed to be bound by the process of Dispute Resolution, as required by the FFA, or the DOI under the circumstances defined in the FFA) may invoke Dispute Resolution to resolve the disagreement.

- As Lead Party for the design and implementation of this IRA, the Army shall issue the final Implementation Letters, as described above, and shall be responsible for implementing any particular phase of this IRA in accordance with the Respective IRA Implementation Letter. It is estimated that this IRA will be implemented in at least three phases. The first phase would be the removal of eight USTs registered with the State of Colorado as petroleum storage tanks. This would be followed by a second phase that addressed remaining petroleum storage tanks. Following the first two phases, a third phase would be implemented to address USTs that were used to contain hazardous substances.

8.0 CONSISTENCY WITH THE FINAL REMEDIAL ACTION

The FFA states that all IRAs shall "to the maximum extent practicable, be consistent with and contribute to the efficient performance of Final Response Actions" (paragraph 22.5).

The selected alternative, removing the USTs, will be consistent with and contribute to the efficient performance of any Final Response Action selected in the Onpost ROD.

9.0 REFERENCES

40 CFR Part 264 Subpart J. Tank Systems

40 CFR Part 280. Technical Standards and Corrective Action Requirements for Owners/Operators of Underground Storage Tanks (UST)

40 CFR Part 261 Subpart C. Characteristics of Hazardous Waste

40 CFR Part 261 Subpart D. Lists of Hazardous Wastes

6 CCR 1007-3 Part 264 Subpart J. Tanks

6 CCR 1007-5/7 CCR 1101-14. Underground Storage Tanks

RTIC 89068R01
Federal Facility Agreement for the Rocky Mountain Arsenal

RTIC 88131R01
Rocky Mountain Arsenal, Final Technical Program Plan, FY88-FY92, Remedial Investigation Feasibility Studies/Interim Response Actions

RTIC 88162R01
Synopsis of Proposed Consent Decree in the United States v. Shell Oil Company

APPENDIX A

COMMENTS ON THE DRAFT ASSESSMENT/DECISION DOCUMENT UNDERGROUND STORAGE TANK MONITORING AND REMOVAL

COMMENTS ON THE DRAFT ASSESSMENT/DECISION DOCUMENT UNDERGROUND STORAGE TANK MONITORING & REMOVAL

General Comment: It was EPA's understanding that when the document was modified and the revised pages were sent out, Appendix A should have been removed. No mention was made of this in the letter.

Response: EPA is correct, Appendix A should have been removed from the document.

Specific Comments:

Comment: Figure 2-1: The legend shows a tank T0001 as both a hazardous substance waste underground storage tank and a nonregulated underground storage tank, but the figure indicates only a tank T0011 (different number) as a hazardous substance waste underground storage tank. There was some confusion over this figure in the meeting on May 20, 1993, but the figure was not modified. It was EPA's understanding from the meeting that there are two hazardous waste storage tanks in the North Plants and they should be removed as part of this IRA. Please clarify.

Response: The legend for the tank classification has been modified to reflect tanks as shown on the figure.

There are two (2) hazardous substance/waste tanks in North Plants. These tanks will be removed by Tennessee Valley Authority (TVA).

Comment: Figure 2-2: The legend shows a tank T0001 as both a hazardous substance waste underground storage tank and a nonregulated underground storage tank, but the figure shows only tank T0001 as a hazardous substance waste underground storage tank. Please clarify.

Response: The legend for the tank classification has been modified to reflect tanks as shown on the figure.

Comment: Figure 2-3: The legend shows a tank T0001 as both a hazardous substance waste underground storage tank and a nonregulated underground storage tank, and the figure shows two different types of tank with the same number plus a tank T0001* as a petroleum underground storage tank. Please clarify.

Response: The legend for tank classification has been modified to reflect tanks as shown on the figure. The asterisk (*) next to a tank is to identify petroleum USTs registered with the State.

Comment: Table 2-1: Three tanks were added to the bottom of this list since the previous version. Tanks T0003, T0002, and T0001 are shown as having been removed. When, how, and under what process were these tanks removed?

Response: Three tanks were added to the table. These tanks were removed prior to 1988 and the Army is currently preparing a work plan to perform proper closure at tank locations.

Comment: Page 23, Section 6.0, Second paragraph, last sentence: The reference to Appendix A, the site assessment for the Phase 1 tanks, should be removed since the Appendix should have been removed (see general comment above).

Response: All references to Appendix A have been removed from the document.

Response to Fish and Wildlife Service Comments

Comment: All open pits and trenches should be signed or roped off so that other field workers on the Arsenal are aware of hazards. The Service would like to be notified immediately in the event of any wildlife conflicts during the field work.

Response: The workplan for UST removal states that all excavations for UST removal must be fenced off with a 6 foot high chain link fence to prevent unauthorized entry by personnel and to prevent wildlife from entering the excavation.

Comment: Backfill material should be free of contaminants, and at least the top two feet should consist of topsoil suitable for eventual revegetation with grasses, forbs, and shrubs.

Response: Where appropriate, backfill material will consist of 2 feet of topsoil suitable for eventual revegetation with grasses, forbs, and shrubs.

Response to Colorado Department of Health Comments

Comment: 1) The NCP (40 CFR 300.430(f)(3) requires that the Army hold a pubic meeting regarding the remedy selected for this interim response action. At the Committee meeting on May 13, 1993, the Army stated that they would not schedule a meeting, but would hold a meeting if it was requested by the public, or if there were a significant number of public concerns raised. The fact sheet issued by the Army on UST removal, the sheet states that a meeting will not be held. At a minimum a letter explaining that a public meeting will be held if necessary should be sent to those who received the fact sheet.

Response: The Army disagrees with the State's legal interpretation of the NCP regarding the necessity of holding a public meeting for this IRA. Nevertheless, the Army reaffirms the position that a public meeting could be held if sufficient public interest in this IRA exists. The Fact Sheet does not contain any discussion about holding or not holding a public meeting. The language used in the cover letter of the Fact Sheet sent to the public does not preclude a request for a public meeting on this IRA by a concerned citizen. To date, no written or verbal comment on this IRA have been received from the public.

Comment: 2) Please clarify all potential contents of USTs in the North Plant area. Figure 2-1 indicates that some of the tanks to be removed from this area contain or had contained hazardous substances/wastes. In the UST/PCB subcommittee meeting on May 20, 1993, the Army stated that there are no tanks containing hazardous substances/wastes schedule to be removed from the North Plants area.

Response: There are two (2) USTs in North Plants which contain hazardous substances/wastes. These USTs will be removed by Tennessee Valley Authority (TVA).

Comment: 3) Table 2-1 references building numbers, yet those building numbers are not on any of the maps. Please put building numbers on the maps to ensure the ease all necessary information is present for public review.

Response: Table 2-1 references building numbers not on the maps. To add legible building numbers to the maps would require the map size to be 36" x 48". The building numbers were not put on the maps.

Comment: 4) On page 23 there is a reference to Appendix A, the site assessment for the Phase 1 tanks. Has this Appendix been removed from the document issued to the public libraries, as indicated by the Army during the RMA Committee meeting on June 10, 1993? If so, this reference should be removed. If not, how does this Appendix assist or clarify the review process?

Response: The reference to Appendix A has been deleted from page 23.

Comment: 5) Section 4.4.2 discusses the short-term and long-term effectiveness and implementability. However, it does not acknowledge that the remedy "shall utilize permanent solution" to the "maximum extent practicable" 40 CFR 300.430(f)(1). Thus, the principal measure of the effectiveness of an alternative is the degree to which it provides for an alternative is the degree to which it provides for a permanent remedy. Please revise accordingly.

Response: Section 4.4.2 has been revised to reflect the alternative selected does provide a permanent solution as stated in 40 CFR 300.430(f)(1).