LONGHORN ARMY AMMUNITION PLANT

KARNACK, TEXAS

ADMINISTRATIVE RECORD

VOLUME 4 of 4

1992

Bate Stamp Numbers
005545 - 005614

Prepared for:

Department of the Army
Longhorn Army Ammunition Plant
Marshall, Texas 75671-1059

1995

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD - CHRONOLOGICAL INDEX

VOLUME 4 of 4

1992

A. Title: Letter - TWC's Response to Comments on Draft Phase I Remedial Investigation / Feasibility Study (RI/FS) Work Plan Budget And Schedule
Group(s): 1,2, & 3
Site(s): LHAAP-1 Inert Burning Grounds
LHAAP-11 Suspected TNT Burial Site At Avenues P & Q
LHAAP-12 Activ Landfill
LHAAP-13 Suspected TNT Burial Site Between Old &ActiveLandfills
LHAAP-14 Area 54 Burial Ground
LHAAP-16 Old Landfill
LHAAP-17 Burning Ground No. 2 / Flashing Area
LHAAP-18 & LHAAP-24 Burning Ground / Washout Pond &Evaporation Pond
LHAAP-27 South Test Area
LHAAP-29 Former TNT Production Area
LHAAP-32 Former TNT Disposal Plant
LHAAP-54 or LHAAP-XX Ground Signal Test Area
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Texas Water Commission
Author(s): Michael A. Moore, Texas Water Commission
Recipient: Lynn Muckelrath, Project Manager, Longhorn Army Ammunition Plant
Date: July 10, 1992
Bate Stamp: 005545 - 005548

B. Title: Letter - Subject: Response To Comments Revised Community Relations Plan
Attach(s) Comments
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: U. S. Army, Longhorn Army Ammunition Plant
Author(s): Michael K. Cobb, Contract Operations Officer
Recipient: Ms. Lisa Marie Price, Environmental Protection Agency
Date: July 14, 1992
Bate Stamp: 005549 - 005567

C. Title: Letter - Subject: LHAAP Remedial Investigation / Feasibility Study (RI / FS) Work Plan
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Texas Water Commission

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1992

Author(s): Michael A. Moore, RI/FS II Unit, Superfund Investigation Section, Pollution Cleanup Division
Recipient: Lynn Mucklerath, Project Manager, LHAAP
Date: July 17, 1992
Bate Stamp: 005568

D. Title: Memorandum - Response to Comments on Draft Phase I Remedial Investigation / Feasibility Study (RI/FS) Work Plan
Group(s): 1,2, & 3
Site(s): LHAAP-1 Inert Burning Grounds
LHAAP-11 Suspected TNT Burial Site At Avenues P & Q
LHAAP-12 Active Landfill
LHAAP-13 Suspected TNT Burial Site Between Old & Active Landfills
LHAAP-14 Area 54 Burial Ground
LHAAP-16 Old Landfill
LHAAP-17 Burning Ground No. 2 / Flashing Area
LHAAP-18 & LHAAP-24 Burning Ground / Washout Pond & Evaporation Pond
LHAAP-27 South Test Area
LHAAP-29 Former TNT Production Area
LHAAP-32 Former TNT Disposal Plant
LHAAP-54 or LHAAP-XX Ground Signal Test Area
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: U.S. Army Corps Of Engineers
Author(s): R. Terry Coomes, Chief, Engineering Division, U.S. Army Corps Of Engineers, Fort Worth District
Recipient: Commander, U.S. Army, Longhorn Army Ammunition Plant
Date: August 12, 1992
Bate Stamp: 005569 - 005598

E. Title: FAX - Subject: DERPMIS List
Attach(s): List
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Department Of The Army, Longhorn Army Ammunition Plant
Author(s): Lynn Muckelrath, Longhorn Army Ammunition Plant
Recipient: Ms. Lisa M. Price, Environmental Protection Agency
Date: August 13, 1992
Bate Stamp: 005599 - 005601

F. Title: Letter - Subject: Meeting, LHAAP, for Technical Review Committee - December 8,

1993
Attach(s): Meeting Agenda
Attendance Lists
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Department Of The Army, Longhorn Army Ammunition Plant
Author(s): Robert W. Bringman, Lieutenant Colonel, U.S. Army
Recipient: Ms. Lisa M. Price, Environmental Protection Agency
Date: September 3, 1992
Bate Stamp: 005602 - 005605

G. Title: Letter - TWC 's Approval Of Remedial Investigation / Feasibility Study (RI/FS) Work Plan
Group(s): 1,2, & 3
Site(s): LHAAP-1 Inert Burning Grounds
LHAAP-11 Suspected TNT Burial Site At Avenues P & Q
LHAAP-12 Active Landfill
LHAAP-13 Suspected TNT Burial Site Between Old & Active Landfills
LHAAP-14 Area 54 Burial Ground
LHAAP-16 Old Landfill
LHAAP-17 Burning Ground No. 2 / Flashing Area
LHAAP-18 & LHAAP-24 Burning Ground / Washout Pond & Evaporation Pond
LHAAP-27 South Test Area
LHAAP-29 Former TNT Production Area
LHAAP-32 Former TNT Disposal Plant
LHAAP-54 or LHAAP-XX Ground Signal Test Area
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Texas Water Commission
Author(s): Michael A. Moore, Texas Water Commission
Recipient: Lynn Muckelrath, Project Manager, Longhorn Army Ammunition Plant
Date: September 14, 1992
Bate Stamp: 005606 - 005607

H. Title: Letter - EPA's Approval Of Remedial Investigation / Feasibility Study (RI/FS) Work Plan
Group(s): 1,2, & 3
Site(s): LHAAP-1 Inert Burning Grounds
LHAAP-11 Suspected TNT Burial Site At Avenues P & Q
LHAAP-12 Active Landfill

LHAAP-13 Suspected TNT Burial Site Between Old & Active Landfills
LHAAP-14 Area 54 Burial Ground
LHAAP-16 Old Landfill
LHAAP-17 Burning Ground No. 2 / Flashing Area,
LHAAP-18 & LHAAP-24 Burning Ground / Washout Pond & Evaporation Pond
LHAAP-27 South Test Area
LHAAP-29 Former TNT Production Area
LHAAP-32 Former TNT Disposal Plant
LHAAP-54 or LHAAP-XX Ground Signal Test Area
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Environmental Protection Agency
Author(s): Lisa Marie Price, Remedial Project Manager, Superfund Texas Enforce
Recipient: Lynn Muckelrath, Project Manager, Longhorn Army Ammunition Plant
Date: September 14, 1992
Bate Stamp: 005608

I. Title: Letter - Subject: Need For Interim Action At Unlined Evaporation Pond & Burning Ground No. 3
Group(s): Early Interim Action At Burning Ground No. 3
Site(s): LHAAP - 18 LHAAP - 24 Burning Ground / Washout Pond & Unlined Evaporation Pond
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Environmental Protection Agency
Author(s): Ms. Lisa Marie Price, Environmental Protection Agency
Recipient: Lynn Muckelrath, Longhorn Army Ammunition Plant
Date: October 6, 1992
Bate Stamp: 005609 - 005610

J. Title: Letter - Subject: Comments On DERPMIS List
Attach(s): List
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Environmental Protection Agency
Author(s): Ms. Lisa Marie Price, Environmental Protection Agency
Recipient: Lynn Muckelrath, Longhorn Army Ammunition Plant
Date: October 13, 1992
Bate Stamp: 005611 - 005612

K. Title: Letter - Subject: Meeting, LHAAP, for Technical Review Committee - December 8, 1993

VOLUME 4 of 4 (Continued)

1992

Attach(s): Meeting Agenda
Group(s): All
Site(s): General
Location: Longhorn Army Ammunition Plant, Marshall, Texas
Agency: Department Of The Army, Longhorn Army Ammunition Plant
Author(s): Robert W. Bringman, Lieutenant Colonel, U.S. Army
Recipient: Ms. Lisa M. Price, Environmental Protection Agency
Date: December 1, 1992
Bate Stamp: 005613 - 005614

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

July 10, 1992

CERTIFIED MAIL
P 756 722 106
RETURN RECEIPT REQUESTED

Lynn Mucklerath, Project Manager
Longhorn Army Ammunition Plant
Attn: SMCLO-EN
Marshall, Texas 75671-1059

Re: Longhorn Army Ammunition Plant
Remedial Investigation/Feasibility Study (RI/FS) Work Plan

Dear Mr. Muckelrath:

Texas Water Commission (TWC) staff have completed review of the Army's responses to our comments on the first draft RI/FS Work Plan, and the revised draft Work Plan dated June 1992. Lisa Price has discussed EPA's comments with me, and I concur with those comments, which you will receive directly from her. The TWC approves the Work Plan as it pertains to RI Phase I, subject to the enclosed comments and modifications.

Sincerely yours,

Michael A. Moore
RI/FS II Unit
Superfund Investigation Section
Pollution Cleanup Division

Enclosure

MM:

cc: D. Wade Anderson, COE Tulsa District
Deborah Fitzgerald, COE Ft. Worth District
Lisa Price (6H-ET), EPA Region VI

LONGHORN ARMY AMMUNITION PLANT
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
TWC COMMENTS AND MODIFICATIONS TO
JUNE 1992 WORK PLAN

Equipment Decontamination:

Two of the purposes of equipment decontamination are to ensure the reliability (quality assurance and quality control) of data by preventing cross-contamination and to prevent the spread of contaminants from a contaminated area of the site to another area. If contaminated equipment is taken outside a site which is being investigated to a "central" decontamination area, a potential will exist for spreading contaminants to previously uncontaminated areas, in which case additional RI work will be required to assess such areas. If locations and design of equipment decontamination areas are not approved by TWC, there is a likelihood that we will request additional Remedial Investigation (RI) work to be performed to assess the impact of RI activities on any additional areas which may be contaminated.

Prevention of Cross-contamination during Drilling:

TWC is not only interested in preventing cross-contamination from occurring from a shallow saturated zone to a deeper saturated zone, but also from contamination at the surface or in the vadose zone into the first saturated zone. Therefore, use of the auger flights alone is not adequate to prevent such contamination, since it is impossible to ensure that contaminated soils will not fall into the borehole from a contaminated area at the surface or above the zone being penetrated. TWC is willing to concede that surface casings may not be required for shallow soil borings where the hollow stem auger is left in the hole and then grouted from the bottom upward during removal; however, it is our policy that surface casings be installed in all monitoring wells to a depth of at least 5 feet, or through a suspected or obvious contaminated zone, whichever is greater, unless the uppermost saturated zone is encountered at less that 5 feet from the surface.

Monitoring Well Screen Placement:

The TWC considers a confining zone (or "confining material", as used in the work plan) to be the unsaturated zone which underlies a saturated zone. It is inconceivable that a confining (non-transmissive) zone will not be encountered beneath a saturated zone. If the saturated zone is greater than 20 feet in thickness, cluster wells will be required to monitor, at a minimum, the upper 20 feet and the lower 20 feet of the saturated zone. Monitoring only the upper 20 feet of a saturated zone is unacceptable.

Location of Monitoring Wells:

Monitoring wells are required at a disposal site to determine whether contaminants from the site have entered ground water; and if so, whether the contaminated ground water has migrated out of the site; and if so, how far the contaminants have migrated and at what rate they are migrating. Placement of a well through the waste in a site as proposed for LHAAP-17) can only be valuable in determining whether contaminants have migrated vertically into the underlying ground water, or came from some other upgradient source. If very shallow ground water is expected at a site (as at LHAAP-17), and waste with any water-soluble constituents have been disposed at the site, it is almost a foregone conclusion that contaminated ground water will be encountered beneath the site. If the uppermost ground water is found at a deeper depth, there is a risk of creating a conduit for vertical migration of contaminants by installing such a well. The proposed well placement also still leaves the ground water downgradient of at least one burn pit without adequate monitoring. Therefore, it is recommended that one or preferably two wells be installed around the edge of the northwest boundary of LHAAP-17 instead of through the suspected waste disposal area inside the perimeter of the site.

Collection of Samples during Drilling:

Samples of cuttings taken from auger flights are virtually useless for environmental investigations, and the sampling method described at section 4.1.1.3 should not be used. Continuous samples should be collected using a core barrel, Shelby tube, or split spoon sampler. If the formation consists of such unconsolidated or saturated material that the sample cannot be recovered, this fact should be noted on the drilling log.

Asbestos:

Asbestos is listed as a hazardous substance in 40 CFR §302.4. There were visible indications that building debris disposed in the "inert burning grounds" (LHAAP-1) contained asbestos. While asbestos is primarily an airborne hazard, it could become a health hazard to workers at the site during future remedial action if material has to be handled or moved with heavy equipment. Therefore, it is recommended that asbestos be included as a contaminant of concern in the investigation of that site.

Management of Investigation-derived Wastes:

The EPA guidance document (EPA/540/G-91/009) included as Appendix C-1 to Volume 2 of the work plan applies to CERCLA Site Inspections (SI's), not to Remedial Investigations (RI's). Hazardous waste determination and waste classification procedures required by TWC regulations (see 31 TAC §335.62 and 335.6, respectively) must be

complied with for all wastes generated during RI's. The following procedures should be used:

(1) Investigation generated wastes should be containerized immediately upon being generated.

(2) Containers should be clearly marked with adequate identification so that the contents can be related to laboratory analysis data obtained during the RI.

(3) Containers should be securely stored at each site (on pallets and covered with plastic, at a minimum), or may be stored at a secure site at the facility if a secure location is not available at the site of generation.

(4) (a) If, after review of analytical data from the laboratory, it is determined that particular containers of waste are not contaminated, they may be returned to the site from which they were generated and spread on the ground as proposed in the work plan (soils) or placed in the on-site waste water treatment facility (water).

(b) If a particular container of waste is determined to be contaminated, but is not hazardous waste, the waste should be stored at the site until it is classified according to TWC rules, and then treated along with other similar wastes at the site during remedial action. A more permanent storage facility will need to be constructed if remedial action will not begin sooner than one year.

(c) If any particular wastes are determined to be hazardous waste, they must be handled as hazardous wastes as described in the work plan.

Consultation with EPA and TWC Regarding Phase II Remedial Investigation:

As Lisa Price discussed in her May 29, 1992 letter, it is requested that the results of Phase I be submitted as a secondary document so that EPA and TWC will have the opportunity to review the data and offer recommendations for Phase II work. It is likely that an amendment to the RI Work Plan will be required prior to the start of Phase II field work.

005549

DEPARTMENT OF THE ARMY
LONGHORN/LOUISIANA ARMY AMMUNITION PLANTS
MARSHALL, TEXAS 75671-1059

REPLY TO
ATTENTION OF

July 14, 1992

SMCLO-EV (200-1a)

SUBJECT: Longhorn Army Ammunition Plant Community Relations Plan Revisions

Environmental Protection Agency
ATTN: Ms. Lisa M. Price (6H-ET)
1445 Ross Avenue
Dallas, Texas 75202

Dear Ms. Price:

Enclosed are the revised pages of the Community Relations Plan (encl 1) and response to comments from Environmental Protection Agency (encl 2).

If there are any questions, please contact Mr. Lynn Muckelrath, (903) 679-2980.

Sincerely,

Michael K. Cobb, Sr.
Contract Operations Officer

Enclosures

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

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ENCLOSURE 1

Information can also be obtained from:

Ms. Betty Williamson
Community Relations Coordinator
EPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202
Phone: (214) 655-6705

Other persons to contact for information are listed in Appendix A.

1.2 Regulatory Involvement. LHAAP was listed on the National Priorities List, as defined in the Comprehensive Environmental Restoration, Compensation and Liability Act (CERCLA), on 30 August 1990. The Texas Water Commission (TWC) issued a Resource Conservation and Recovery Act (RCRA) Part B permit, Permit No. HW-50195, to LHAAP. The permit became effective in February 1992. A Federal Facility Agreement has been negotiated between the U.S. Department of Army, the EPA and the TWC in order to meet regulatory requirements of both acts. The purpose of the agreement is to describe guidelines and procedures to implement the CERCLA response obligations. Consequently, all investigations and clean-up activities will adhere to the CERCLA process while:

(1) satisfying the corrective action requirements under RCRA for a RCRA permit,

(2) meeting requirements for interim status facilities,

2.3. History of LHAAP.

2.3.1 Plant Activity History. LHAAP was established in October 1942; its primary purpose was the production of TNT. Production continued through World War II; after August 1945, the plant ceased production. From 1952 through 1956, LHAAP produced photo flashes, simulators, hand signals and ammunition tracers. Thiokol Corporation began production of rocket motors in 1955 and assumed full responsibility for plant operation in 1956. Currently, LHAAP is a government-owned, contractor-operated industrial facility under the jurisdiction of the U.S. Army Armament, Munitions and Chemical Command. The plant's current mission is to load, assemble and pack out pyrotechnic and illuminating/signal ammunition and solid propellant rocket motors. The Longhorn Division of Thiokol Corporation is the current operating contractor.

2.3.2 History of Relationship with Environment. Production activities at the plant required disposal of various materials, including demolition debris, explosives and acids. A variety of burning grounds and pits were used for disposal of solvents, solid and liquid explosives and other materials. Other locations on the plant were used as landfills for the disposal of paints, chemicals, oils and other inert and hazardous wastes.

2.3.3 Nature of Plant's Environmental Problems. Thirteen areas have been identified under the Federal Facility Agreement as having potential environmental problems. Because of past disposal practices, soils and groundwater within LHAAP are contaminated.

The contaminants include explosive compounds, trichloroethene, methylene chloride, heavy metals and other organic compounds. Soil contamination due to explosives has been verified to depths of 15 feet. Groundwater monitoring wells on the installation have detected organic and inorganic compounds, but groundwater contamination outside the installation has not been detected at this time. Four creeks flow through LHAAP and drain to Caddo Lake on the eastern boundary of the installation. While surface water is contaminated in some areas within the installation, surface water contamination has yet to be detected outside the installation.

2.4 Previous Environmental Studies. The following information describes previous environmental clean-up activities at LHAAP.

LHAAP 11 - Suspected TNT Burial Site at Avenues P and Q. Investigations were conducted at this site in 1984 and 1988. The investigations consisted of surface and subsurface soil sampling. Trace to low levels of explosive contamination were detected in both investigations.

LHAAP 13 - Suspected TNT Burial Site between Old Landfill and Active Landfill. Previous investigations were not conducted.

LHAAP 14 - Area 54 Burial Ground. Previous investigations were not conducted at this site.

collected in the area. One explosive compound was detected along with some elevated levels of metals. A surface water sample was collected in 1991, and the analyses detected low levels of explosive compounds.

LHAAP 1 - Inert Burning Ground. In 1982, investigations at this site included completion and sampling of one groundwater well and three surface soil samples. Contamination by metals, anions, and two explosive compounds was detected.

LHAAP XX - Ground Signal Test Area. In 1982, investigations included installation and sampling of two groundwater wells and three surface soil samples. Elevated levels of some metals were detected in the soil and groundwater. Elevated levels of chloride and sulfate were detected in the groundwater.

LHAAP 27 - South Test Area. In 1982, investigations included installation and sampling of two wells and three surface soil samples. Metals above background levels and explosives were detected in the soil samples. Metals, chloride, and sulfate were detected above background levels in the groundwater.

comments regarding the environmental activities will be entered into the administrative record. The Administrative Record will have an index identifying all pertinent documents. The documents will be arranged in chronological order.

4.2.7 Employee Communications. The community relations activities described in this plan are available to Department of the Army personnel and their contractors. LHAAP employees will be kept informed via the employee newsletter, as well as via management-sponsored presentations.

4.2.8 Public Comments. Notice of public comment periods will be announced in the media, and the notice will describe procedures for submitting comments. A public comment period will be held for 30 calendar days for the submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS. Upon timely request, the public comment period will be extended by a minimum of 30 additional days.

A public meeting will be held in conjunction with the comment period and prior to final selection of a cleanup alternative for each site. Verbal comments received during the public meeting will be considered in the selection of a cleanup alternative. Transcripts of the public meeting will be prepared and made a part of the administrative record. Suggested sites for meetings are listed in Appendix F.

4.2.11 Revision of the CRP. The CRP may be revised at any time to incorporate new information, to reflect changes in the community's concerns, or to prepare for community activities during RD and RA. Once the ROD is completed, it may be necessary to re-evaluate the nature and extent of the community's concerns which may result in a new community relations activities schedule.

4.3 Community Relations Activities Schedule. Due to the diversity of environmental conditions being evaluated, clean-up activities will be in varying stages of remediation. Table 4.1 lists the schedule of events that will be conducted during the investigation and cleanup process.

TABLE 4.1

COMMUNITY RELATIONS ACTIVITIES SCHEDULE

		CRP Start	RI/FS	Response Summary	Record of Decision
1.	Fact Sheet	X	X	X	X
2.	Technical Review Committee	X	--	--	--
3.	Independent Environmental Advisory Group	*			
4.	Briefings & Discussions	X	--	--	--
5.	Press Releases	X	X	X	X[1]
6.	Administrative Record	--	--	--	--
7.	Employee Communications	--	--	--	--
8.	Public Comments	--	--	--	X[2]
9.	Public Information Repository	--	--	--	--
10.	Mailing Lists	--	--	--	--
11.	Revisions to the CRP	*	*	*	*

Notations: X Projected Activity; -- Continuing Activity; * Activity if needed; ** Formal Comment Solicitation

1 A formal public notice will also be issued at this point.
2 Includes formal solicitation of comments.

APPENDIX A

LIST OF AGENCY CONTACTS

FEDERAL AGENCIES

Department of Army, Longhorn Army Ammunition Plant

Dorothy Grant
Public Affairs Office
Longhorn Army Ammunition Plant
Marshall, TX 76671-1059
Phone: (903) 679-2228

Environmental Protection Agency

Betty Williamson
Community Relations Coordinator
EPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, TX 75202
Phone: (214) 655-6705

STATE AND LOCAL AGENCIES

Texas Water Commission

John W. Witherspoon
District Manager
Texas Water Commission, District 5
2016 Teague Drive
Tyler, TX 75701
Phone: (903) 595-5466

COUNTY

Jerry Taylor
County Commissioner
Marion County
102 W. Austin, Room 207
Jefferson, TX 75657
Phone: (903) 665-3261

William D. Power
County Commissioner
Harrison County
4804 Karnack Highway
Marshall, TX 75607
Phone: (903) 935-4809

APPENDIX D

HARRISON COUNTY ELECTED OFFICIALS
1990 - 1991

1. **COUNTY CLERK - GLENN LINK**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4858

2. **COUNTY COURT-AT-LAW JUDGE - MAX SANDLIN, JR.**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4838

3. **COUNTY JUDGE - RODNEY GILSTRAP**
   Room 313
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4805

4. **COUNTY TREASURER - BETTY ANDERSON**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4820

5. **DISTRICT ATTORNEY - RICK BERRY**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4840

6. **DISTRICT CLERK - BETTY CAWOOD**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4845

7. **SHERIFF - BILL OLDHAM**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4888

8. **TAX ASSESSOR-COLLECTOR - MARIE NOLAND**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4850

9. **MAYOR - BILL MAUTHE**
   Town of Uncertain
   Uncertain, TX 75661

JUSTICES OF THE PEACE

1. **PRECINCT #1 - PATSY PUGH**
   Rt. 1 Box 800
   Marshall, TX 75670
   903/679-2282 (Office) or 903/938-8585 (Home)

2. **PRECINCT #2 - RICHARD SALMON**
   P.O. Box 872
   Waskom, TX 75692
   903/687-3374

3. **PRECINCT #3 - MARY COLE**
   P.O. Box 394
   Hallsville, TX 75650
   903/668-2050 (Office) or 903/668-2423 (Home)

4. **PRECINCT #4 - MELBA ONEY**
   P.O. Box 762
   Harleton, TX 75651
   903/777-3232

5. **PRECINCT #5, PL. 1 - PEARL SCHNORBUS**
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4854

6. **PRECINCT #5, PL. 2 - ALPHONZO WILLIAMS**
   Harrison County Courthouse
   Marshall, tX 75670
   903/935-4856

7. **PRECINCT #6 - FAYE SUMMERS**
   Rt. 2 Box 112
   Karnack, TX 75661
   903/679-3059 (Office) or 903/679-3576

CONSTABLES

1. **PRECINCT #1 - TOMMY WEAVER**
   Rt. 1 Box 273-J
   Marshall, TX 75670
   903/633-2346

2. **PRECINCT #2** - ROBERT CAIN
   P.O. Box 614
   Waskom, TX 75692
   903/687-3516

3. **PRECINCT #3 - DON WELCH**
   P.O. Box 27
   Hallsville, TX 75650
   903/668-3611

4. **PRECINCT #4 - DANNY LOVETT**
   P.O. Box 365
   Harleton, TX 75651
   903/777-4032

5. **PRECINCT #5 - RICK BELL**
   508 Duncan Road
   Marshall, TX 75670
   903/938-5627 or 903/938-9674

6. **PRECINCT #6 - TOM SMITH**
   P.O. Box 82
   Karnack, TX 75661
   903/679-3060 (Store) or 903/789-3478 (Home)

COUNTY COMMISSIONERS

1. **PRECINCT #1 - JAMES D. MOONEY**
   Room 313
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4808

   Home: Rt. 3 Box 307
   Marshall, TX 75670
   903/935-7609

2. PRECINCT #2 - WILLIAM D. POWER
   Room 313
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4809

   Home: 4804 Karnack Hwy.
   Marshall, TX 75670
   903/935-3742

3. **PRECINCT #3 - MIKE ADKISSON**
   Room 313
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4810

   Home: Rt. 9 Box 517N, Cerliano Road
   Longview, tX 75601
   903/758-0194

4. **PRECINCT #4 - H. W. McCOY**
   Room 313
   Harrison County Courthouse
   Marshall, TX 75670
   903/935-4811

   Home: Rt. 2 Box 382
   Diana, TX 75640
   903/968-8182

CYPRESS VALLEY NAVIGATION DISTRICT BOARD MEMBERS

1. WILLIAM D. POWER, CHAIRMAN
   P.O. Box 8463
   Marshall, TX 75670

2. T. D. "RUSTY" HOWELL
   Howell & Sandlin
   P.O. Box 1896
   Marshall, TX 75670

3. DOTTIE RUSSELL
   Rt. 2 Box 66B
   Uncertain, TX 75661

4. SCOTT BALDWIN, SR.
   Baldwin & Baldwin
   P.O. Box 1349
   Marshall, TX 75670

5. DOROTHY P. GRANT, SECRETARY/TREASURER
   Rt. 2 Box 66
   Karnack, TX 75661

6. TOM TANNER
   Rt. 1 Box 2307
   Jefferson, TX 75657

7. ORVELL LEE HAYES
   Rt. 4 Box 414
   Jefferson, TX 75657

8. JERRY TAYLOR, VICE-CHAIRMAN
   P.O. Box 507
   Harleton, TX 75651

9. JESSE M. DEWARE, IV
   P.O. Box 668
   Jefferson, TX 75657

10. MARTIN E. WHELAN
    404 South Friou
    Jefferson, TX 75657

APPENDIX E

CONCERNED CITIZENS GROUPS

1. CYPRESS VALLEY NAVIGATION DISTRICT (List Enclosed)

2. GREATER CADDO LAKE ASSOCIATION
   GEORGE WILLIAMSON
   BIG PINES LODGE
   RT. 2
   KARNACK, TX 75661

3. ELECTED OFFICIALS (List Enclosed)

TECHNICAL CONTACTS

1. Department of the Army
   Environmental Office
   ATTN: CEHSC-E
   Washington, DC 20310-2600
   202/694-1163

2. Commander
   U.S. Army Materiel Command
   ATTN: AMCEN-A
   5001 Eisenhower Avenue
   Alexandria, VA 22333-0001

3. Commander
   U.S. Army Armament, Munitions and Chemical Command
   ATTN: AMSMC-ISE-E
   Rock Island, IL 61299-6000
   309/782-1435

4. Commander
   U.S. Army Corps of Engineers, Tulsa District
   ATTN: CESWT-EC-G (Mr. John Roberts)
   P.O. Box 61
   Tulsa, OK 74121-0061
   918/581-7845

EPA Comments

Comment 1. Page 21, Section 4.2.8: Although the response to comments states that EPA's comment has been addressed, it has not. This section should read: Notice of public comment periods will be announced in the media, and the notice will describe procedures for submitting comments. A public comment period will be held for 30 calendar days for the submission of written and oral comments on the proposed plan and the supporting analysis and information located in the information repository, including the RI/FS. Upon timely request, the public comment period will be extended by a minimum of 30 additional days.

Response: Concur. Language as suggest by EPA has been incorporated into the document.

Comment 2. Page 23, Section 4.2.9: EPA concurred with Metcalf & Eddy's comment about listing the documents in the Community Relations Plan in alphabetical order, however, the administrative record index identifying these and the other pertinent documents and the administrative record itself must be arranged in chronological order.

Response: Concur. The following has been added to the section on the Administrative record (Section 4.2.6): The administrative record will be indexed identifying all pertinent documents and listed in chronological order.

ENCLOSURE 2

Price

005568

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

July 17, 1992

CERTIFIED MAIL
P 756 722 107
RETURN RECEIPT REQUESTED

Lynn Mucklerath, Project Manager
Longhorn Army Ammunition Plant
Attn: SMCLO-EN
Marshall, Texas 75671-1059

Re: Longhorn Army Ammunition Plant
Remedial Investigation/Feasibility Study (RI/FS) Work Plan

Dear Mr. Muckelrath:

Texas Water Commission (TWC) staff have reviewed the Army's revised Budget and Schedule (Volume 1, Section 8.0 of the RI/FS Work Plan) which was transmitted via letter dated July 7, 1992. As stated in our letter of July 10, 1992, the results of Phase I RI should be submitted as an additional secondary document, with time allotted for Environmental Protection Agency (EPA) and TWC review and comment, before Phase II field work commences. This will allow project managers to identify potential data gaps and discuss modifications to the work plan which may be required for Phase II.

It is requested that you bring the revised schedule to the project managers' meeting on July 23 at EPA Region VI. If you have any questions or comments before our next meeting, please call me at (512) 908-2483.

Sincerely yours,

Michael A. Moore

Michael A. Moore
RI/FS II Unit
Superfund Investigation Section
Pollution Cleanup Division

MM:ls

cc: D. Wade Anderson, COE Tulsa District
Deborah Fitzgerald, COE Ft. Worth District
Lisa Price (6H-ET), EPA Region VI

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

005569

REPLY TO
ATTENTION OF

CESWF-ED-G (200-1a)

12 August 1992

MEMORANDUM FOR COMMANDER, LONGHORN ARMY AMMUNITION PLANT, ATTN: SMCLO-EN (MUCKELRATH), MARSHALL, TX 75671-1059

SUBJECT: Revisions to Draft Final Remedial Investigation/Feasibility Study (RI/FS) Work Plan for Longhorn Army Ammunition Plant

1. Enclosed are two copies of the responses to the regulatory comments received for the Draft Final RI/FS Work Plan. Also enclosed are two copies each of the revisions to the Work Plan. Revisions for Volume 1, Work Plan, were made by revising pertinent pages. Revised pages are enclosed and should replace the existing pages in Volume 1. Volume 2, Chemical Data Acquisition Plan (CDAP), and Volume 3, Site Safety and Health Plan (SSHP), were completely revised, and the text for each should be replaced with the appropriate enclosed version.

2. For additional information, please contact Ms. Deborah Fitzgerald, 817/334-3221, or Mr. Wade Anderson, 918/581-6106.

FOR THE COMMANDER:

Willis L. Walker

4 Encls (8 cys)

for R. TERRY COOMES, P.E.
Chief, Engineering Division

CF (w/encls):
Cdr, U.S. Army Armament, Munitions, and Chemical Command
ATTN: AMSMC-EQE (Onewokae)
Rock Island, IL 61299-6000 (4 cys)

Cdr, U.S. Army Toxic and Hazardous Materials Agency
ATTN: CETHA-IR
Aberdeen Proving Ground, MD 21010-5401 (4 cys)

Cdr, U.S. Army Environmental Health Agency
ATTN: HSHB-ME-S (T. Jones)
Aberdeen Proving Grounds, MD 21010-5422 (20 cys)

CESWT-EC-GR (Anderson) (12 cys)

CEMRD-ED-CT (Facklam) (16 cys)

CEHND-ED-SY (Ferris) (4 cys)

ADDITIONAL REVISIONS
LONGHORN ARMY AMMUNITION PLANT
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
WORK PLAN (Draft Final)

COE

1. Page 4-2, Table 4-1
Table of Contents, Tables

Title changed to "Chemical" Sampling Plan Summary.

2. Page 4-31/1, Para 4.5.2

Depth of soil borings changed from 5 feet to 7 feet to reflect drilling 2 feet into ground water, which is anticipated at a depth of 5 feet.

3. Page 4-57/3, Para 4.8.3, 4th sentence

Revised to read "A grab sample **of ground water** will..."

RESPONSE TO COMMENTS
LONGHORN ARMY AMMUNITION PLANT (LHAAP)
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
WORK PLAN (Draft Final)

EPA
METCALF AND EDDY

Volume 1:

COMMENT #	SECTION	PAGE/ PARA	RESPONSE
1.	3.1.4	3-7/1	Results from previous studies are not necessarily defendable. Background locations may not be background or may indicate a wide distribution of 1,3,5-TNB not necessarily related to site-specific activities. To begin the formal RI/FS process at LHAAP, site-specific releases will be established by relating test results obtained from samples where a suspected release has occurred to test results from samples where no release is suspected to have occurred. The term "reference' location may be more applicable to this sampling scheme rather than the term "background". Should it be determined that the "reference" locations are contaminated or are suspected to be contaminated during the course of investigations, the entire Longhorn installation will be evaluated with different unaffected background locations being sampled. No change.
2.	3.1.4	3-4/3	The correct unit of concentration is ug/g. The text and Table 3-1-1 are correct. The response to the comment was incorrect. No change.
3.	3.1.6	3-11/2	Concur. Sentence deleted.
4.	3.2.6	3-19/2	Concur. Sentence deleted.
5.	3.3.3	3-23/1	Concur. Correction made.

6.	3.3.6	3-26/3	Concur. Sentence deleted.
7.	3.4.6	3-48/3	Exception. The 100-year floodplain elevation has not been determined for Longhorn Army Ammunition Plant. The estimated probable 100-year flood elevation for Caddo Lake is 185 feet msl (per personal communication with Paul Rodman, Chief, Hydrologic Engineering Section, Fort Worth District Corps of Engineers). Constructing well casings to above this elevation at sites where proposed wells are within the floodplain will result in 10-foot high well casings, which will make water level readings and ground-water sampling difficult under normal conditions. Also, performing sampling under 100-year flood conditions will be most unlikely. Therefore, wells will not be constructed to this flood elevation. Approximate 100-year floodplain elevation has been noted on the pages/Figures noted to the left.
	Revisions		
	3-30/3-4-2		
	3-45/3-4-4		
	3-52/3-5-2		
	4-20/4-4-1		
	4-29/4-5-1		
			The 100-year floodplain contour shown on the site maps for LHAAP 18 & 24 was taken from site maps once provided to Fort Worth District COE by Huntsville Division COE. How this contour was determined is questionable. The statements contained in the Work Plan addressing the "approximate" 100-year floodplain elevation for these two sites as 180 feet msl were based on interpreting the elevation of this contour from these maps.
8.	3.5.2	3-50/2 Fig. 3-5-1	Concur. Correction made.
9.	3.5.2	Fig. 5-5-2	Exception. See response to Comment 7. Approximate 100-year floodplain elevation has been added.

10.	3.6.2	3-68/3	Concur. The "Q Ave" designation on all of the location maps for each of the sites is misplaced. Avenue Q does end at LHAAP 18 & 24, and the extension which is labelled as "Q Ave" is actually a dirt road. No change.
11.	3.6.4	Fig. 3-6-10	Exception. Identification of deep and shallow wells is not pertinent to the intent of this figure, which is simply to delineate the extent of trench material remaining around the air curtain destructor. Relative well depths for the three wells depicted in this figure are discussed in the second paragraph on page 3-92 under Section 3.6.3. No change.
12.	3.6.5.4	3-106/4	Concur. Statement added.
13.	3.6.5.5	3-107/2	Concur. Statements added.
14.	3.6.6	3-109/2	Corrected to "Foxes have".
15.	3.6.7.1	3-110/1	Concur. Changes made.
16.	3.6.7.1	3-110/1	Concur. Changes made.
17.	3.6.7.2	3-111/2	Concur. Addition made.
18.	3.8.5.1	3-157/5	Concur. Sentence added.
19.	3.9.5.1	3-175/3	Concur. Sentence added.
20.	3.9.6	3-176/4	Concur. A fence does exist, but does not secure the site. The fence and gate will be shown on the site map whenever it is used to present data generated during the RI. No change.
21.	3.10.3	3-183/2 Fig. 3-10-2	Concur. No change.

22.	3.10.4	3-187/1	Background ground-water monitoring wells numbered 108, 110, 111, and 112 were installed by Environmental Protection System for USATHAMA as part of the Longhorn Army Ammunition Plant Contamination Survey, published in June 1984. These wells were installed along the northwestern, southwestern, southern, and northeastern installation boundaries and were sampled to establish background concentrations for ground-water flowing onto the installation. The constituent concentrations found in the EPS 1984 report were used in a general sense to evaluate whether constituent concentrations identified for each site previously investigated were possibly elevated above "background" concentrations. Because these wells are far removed from any of the areas being investigated under the RI/FS, and because most sites are not directly downgradient from any of the wells, they will not be utilized during the RI Phase I investigation. The Phase I efforts will be to determine if a release has occurred at each suspect area. Should site-specific background information indicate background contamination, it may be necessary to sample these wells or install additional wells to determine background ground-water quality for the entire installation. A map showing the locations of these four wells (Figure 3) and a table (Table A-1) showing the 1984 ground-water sampling results are provided. Both are excerpted from the EPS 1984 report reference in the RI/FS Work Plan. No change.
23.	3.11.2	3-192/4	Concur. Change made.
24.	3.11.4	3-196/3	See response to Comment 22.
25.	3.11.4	3-202/2	Concur. Change made.
26.	4.0		No wells proposed to be plugged will be sampled prior to plugging. No change.

27.	4.4.1	4-22/2	No non-intrusive site screening survey will be necessary because UXO clearance will be performed before and during all field and drilling operations. No change.
28.	4.4.2.4.1	4-26/2	Approximate 100-year floodplain elevation has been added to Figure 4-4-1. Several wells may be within the floodplain. See response to Comment 7.
29.	4.5.2	4-31	Exception. See response to Comment 7.
30.	4.9.2.2	4-61/3	Exception. Paragraph 4.9.2.4 on page 4-66 addresses sampling ground water from the 5-foot borings. No change.
31.	4.11.3	4-81/4	Concur. Corrected.
32.	5.2	5-5/2	Concur. Change made.
33.	8.2	8-6/	Updates were provided to EPA on July 7, 1992. As a result of comments received on the submittal of the Draft Final RI/FS Work Plan, the schedule is once again revised. A revised Section 8.0 is provided.
34.	1.3.2	1-7/1	Concur. Table has been added as Table B-9 in Appendix B.
35.	3.6		Concur. The general approach for cluster well ground-water monitoring is addressed in the response to EPA Comment 6. No additional wells will be installed during the Phase I investigation. It is necessary to perform a complete round of ground-water sampling, review all available subsurface data and well construction details, and then identify the data gaps to be filled during Phase II efforts for monitoring the site. Any additional wells installed will follow the general approach discussed in this comment and in the response to Comment 6.

36.	3.6.4	3-102/2	No wells will be sampled prior to plugging. No change.
37.	4.10.2	4-70	A schedule for submitting the work plan addendum for LHAAP 1 has been prepared and is provided as Table 8-4 in revised Section 8.0.
38.	4.4.2.4.1	4-27/3	Concur. No change.

Volume 2:

COMMENT #	SECTION	PAGE/ PARA	RESPONSE
1.	4.5	4-18/2	Concur. Section 4.5 has been revised to state that quality assured containers will be used.
2.	B-4	B-4 (B-7)	Do not concur. SW-846 Method 8330, revised 12/90, does analyze for these parameters. A copy of the first page of the method is enclosed as an attachment. The method provided by RMC Environmental is unacceptable for the following reasons: a. It is not accepted by EPA. b. It uses benzene, a RCRA listed waste and a carcinogen under OSHA regulations, as the extractant. c. An acceptable method already exists (8330).
3.	C-19 &	C-19, C-20 (Table C-2)	Concur. Corrections made.

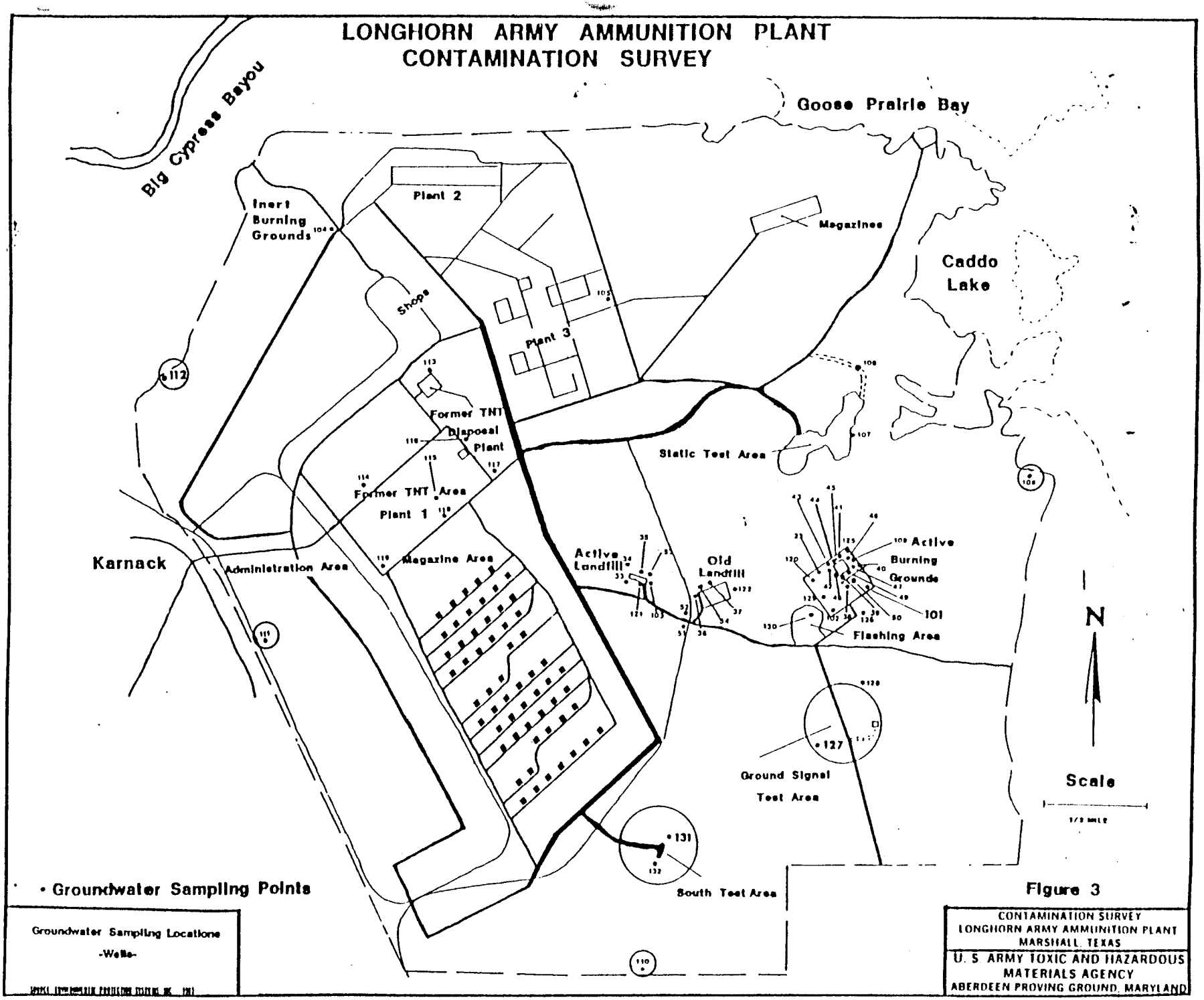
REVIEW COMMENTS, LONGHORN ARMY AMMUNITION PLANT SITE SAFETY AND HEALTH PLAN

Comment 1. Concur.

EM 385-1-1, Section 01.A.05 requires the contractor to prepare an activity hazard analysis prior to the beginning of each major phase of work.

Comment 2. Concur.

Changes and additional information have been added.


LONGHORN ARMY AMMUNITION PLANT
CONTAMINATION SURVEY
Big Cypress Bayou
Goose Prairie Bay
Inert Burning Grounds
Plant 2
Magazines
Caddo Lake
Shops
Plant 3
Former TNT Disposal Plant
Former TNT Area
Plant 1
Static Test Area
Karnack
Administration Area
Magazine Area
Active Landfill
Old Landfill
Active Burning Grounds
Flashing Area
Ground Signal Test Area
South Test Area
N
Scale
• Groundwater Sampling Points
Groundwater Sampling Locations
-Wells-
Figure 3
CONTAMINATION SURVEY
LONGHORN ARMY AMMUNITION PLANT
MARSHALL, TEXAS
U. S ARMY TOXIC AND HAZARDOUS MATERIALS AGENCY
ABERDEEN PROVING GROUND, MARYLAND

005579

Table A-1

Longhorn Army Ammunition Plant Contamination Survey
Summary of Analytical Data For the Groundwater Samples from
Background Wells

Analyte	Southern Boundary Well 110	Southwestern Boundary Well 111	Northwestern Boundary Well 112	Northeastern Boundary Well 108
ANIONS				
Nitrate	<	4350.	67500.*	<
Nitrite	<	<	<	<
Phosphates	<	<	<	<
Sulfate	2407100.*	54500.	951000.*	1378000.
Chloride	1414000.*	41000.	820000.*	2734000.
Fluoride	<	<	2000.	<
Chromate	<	<	<	<
Thiocyanate	<	<	<	<
Cyanide	<	<	<	<
METALS				
Aluminum	180.00	172.00	247.00	147.00
Antimony	<	<	<	<
Barium	32.00	15.60	17.10	31.60
Cadmium	1.44	13.98*	16.27*	15.38
Chromium	10.00	7.00	10.10	12.90
Lead	<	13.80	<	<
Manganese	1570.00*	116.00*	3300.00*	11800.00
Strontium	3920.00	190.00	80.00	8200.00
Mercury	<	<	<	<
Copper	<	<	<	<
Zinc	<	<	<	<
Arsenic	<	<	<	<
Beryllium	<	<	<	<
Nickel	64.	<	<	234.+
Selenium	20.*	<	<	10.+
Silver	<	<	<	<
Thallium	<	<	<	80.+
EXPLOSIVES				
1,3-DNB	<	<	<	<
2,4,6-TNT	<	<	<	<
1,3,5-TNB	<	<	9.00	<
2,4-DNT	<	<	<	<
2,6-DNT	<	<	<	<
Nitrobenzene	<	<	<	<
ORGANICS (GC/MS)				
Benzene	<	<	<	<
Chloroform	<	<	<	<
Trichlorethylene	<	<	<	<
Toluene	ND	ND	ND	24.
Pentachlorophenol	<	<	<	<
o-chlorophenol	<	<	<	<
2,4-dichlorophenol	<	<	<	<
Dibutylphthalate	<	<	<	<
Diethylphthalate	<	<	<	<
Nitrobenzene	<	<	<	<
Dichloromethane	13.+	ND	14.+	<
1,1'-oxybisethane	<	ND	11.	<
Pentane	<	ND	20.	<
Trichloroethene	31.	<	ND	ND
Butyric acid ester with p-hydroxy-benzonitrile	ND	<	ND	ND
ORGANICS (GC/EC)				
P,p'-DDT	<	<	<	<
Dieldrin	<	<	<	<
Alpha-BHC	<	<	<	<
Heptachlor	<	<	<	<
Lindane	<	<	<	<
Toxaphene	<	<	<	<
Aroclor 1016	<	<	<	<
Aroclor 1260	<	<	<	<

All results are expressed in ug/l
< Less than established detection limit (Table 5) or, for semiquantitative organics <10 ug/l
* Exceeds limit designated by Texas Department of Health Drinking Water Standards (Table 6)
+ Exceeds limit of Aquatic Life Criteria or Human Health Criteria designated by U.S. Environmental Protection Agency (Table 7)
! Exceeds limit recommended by U.S. Army Medical Bioengineering Research and Development Laboratory (Table 8)

DRAFT

METHOD 8330

NITROAROMATICS AND NITRAMINES BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

This method is intended for the analysis of explosives residues. This Method is limited to use by analysts experienced in handling and analyzing explosive residues.

1.0 SCOPE AND APPLICATION

1.1 Method 8330 is used to determine the concentration of the following compounds in a water, soil or sediment matrix:

TATB

Compounds	Abbrev.	CAS No.[a]
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	HMX	2691-41-0
Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	121-82-4
1,3,5-Trinitrobenzene	1,3,5-TNB	99-35-4
1,3-Dinitrobenzene	1,3-DNB	99-65-0
Methyl-2,4,6-trinitrophenylnitramine	Tetryl	479-45-8
Nitrobenzene	NB	98-95-3
2,4,6-Trinitrotoluene	2,4,6-TNT	118-96-7
4-Amino-2,6-dinitrotoluene	4-Am-DNT	1946-51-0
2-Amino-4,6-dinitrotoluene	2-Am-DNT	355-72-78-2
2,6-Dinitrotoluene	2,6-DNT	606-20-2
2,4-Dinitrotoluene	2,4-DNT	121-14-2
2-Nitrotoluene	2-NT	88-72-2
4-Nitrotoluene	4-NT	99-99-0
3-Nitrotoluene	3-NT	99-08-1

a Chemical Abstracts Service Registry number

1.2 Method 8330 provides a salting-out extraction procedure for low concentration (parts per trillion or nanograms per liter) of explosives residues in surface or ground water. Direct injection of diluted and filtered water samples can be used for water samples of higher concentration (See Table 1).

1.3 All of these compounds are either used in the manufacture of explosives or are the degradation products of

8.	3.5.2	3-5/2 Fig. 3-5-1	4th line: "...Long Point Road and immediately southeast of Burning Ground No. 3...". Should be "southwest".
9.	3.5.2.	Fig. 3-5-2	Note the elevation of the 100-year flood plain.
10.	3.6.2	3-68/3	2nd & 3rd lines: "...southeastern quadrant of LHAAP at the end of Avenue Q,...". Figure 3-6-3 shows avenue Q continuing to the installation eastern boundary.
11.	3.6.4.	Fig 3-6-10	In the Legend and drawing, identify the shallow monitor well(s) and deep monitor well(s).
12.	3.6.5.4.	3-106/4	Add after 2nd full sentence: "..., but a secondary source of old hazardous waste beneath the bottom of the UEP and the top of the ground water.
13.	3.6.5.5.	3-107/2	Add the following: "The site is covered with vegetation except for the active burning facilities (ACD, open burning pans, etc). The burning of material in the facilities conforms to appropriate air pollution regulations."
14.	3.6.6.	3-109/2	4th line: Is it "a Fox" or "Foxes have"?
15.	3.6.7.1.	3-110/1	Change to read (all additions are [ ]). "The [primary] source of ground-water contamination at the UEP was removed when this RCRA facility was closed in 1986. [A secondary source of contamination may be present in the soil beneath the closed UEP.]
16.	3.6.7.1	3-110/1	Change to Read Lines 20 & 21: "Data indicates that the plume is migrating at a rate of 1.4 ft/yr and...". Add: "The closest domestic water well is 13,700 feet from this area.
17.	3.6.7.2.	3-11/2	Add the word "known" after the phrase "Although no..."
18.	3.8.5.1.	3-157/5	Add: "Leachate discharging into the surface water may contain contaminants."
19.	3.9.5.1.	3-175/3	Add: "Any residual contaminants in the various sumps and basements during or after heavy rains could be carried by overflow and contribute additional contamination to surface waters."
20.	3.9.6.	3-176/4 Fig. 3-9-3	No fence is shown on the existing site map.

21.	3.10.3	3-183/2 Fig. 3-10-2	The location of well 104 shown on Figure 3-10-2 is southeast of the site and most of the site is over 100 feet north from the well. In 3.10.3 the statement is made that well 104 is assumed to be hydraulically downgradient from the site. On page 3-182, 2nd paragraph, the statement is made "...the groundwater hydraulic gradient is expected to be topographically controlled, with general flow directions as indicated on Figure 3-10-2. The regional flow direction across the site is assumed to be toward the southeast." This well appears to be only on the edge of the expected contamination.
22.	3.10.4	3-187/1	Where was the background sample collected? Only one water well was constructed and only one sample has been collected.
23.	3.11.2.	3-192/4	Last sentence should read: "the site inside the projected point of compliance encompasses an area of approximately 80-acres.
24.	3.11.4	3-196/3	3rd line: Where are the background levels collected? When?
25.	3.11.4	3-202/2	3rd line: Change TDH to TWC.
26.	4.0		Will existing monitoring wells at sites that are to be plugged be sampled before the wells are plugged?
27.	4.4.1.	4-22/2	Should a non-intrusive site screening be added before in soil borings in the area are performed?
28.	4.4.2.4.1	4-26/2	Will these new wells be in the 100-yr. flood plain?
29.	4.5.2.	4-31	This site is within the 100-yr. flood plain and the new monitoring well must be properly constructed.
30.	4.9.2.2.	4-61/3	The EPA previously requested that ground water grab-samples be collected from the two shallow (5-foot) borings if ground water is encountered. The COE concurred. However, no phrasing to support the concurrence is included. Add: "If ground water is encountered in any of the 5-foot shallow borings, the boring will be continued until the 5-foot level or 1-foot of water for collecting the sample."
31.	4.11.3	4-81/4	2nd line: "units"

38.	4.4.2.4.1	4-27/3	M&E previously commented on this item regarding DNAPLs at this site. The COE partially addressed this issue. New comment: At least one well on the downgradient should intercept the lower aquiclude if the aquiclude is deeper than the lower 20 foot screen setting. This will not be known until the field work is completed.

C-06067 - LONGHORN ARMY AMMUNITION PLANT
(Volume 2)

Comment #	Section	Page/ Paragraph	Comments
1.	4.5	4-18/2	COE Response/M&E Comments (M&ECMT6). The COE did not concur on M&E request for recording bottle lot numbers for all sample bottles. New comment: It appears that there is no mention of using quality assured containers in the Longhorn Army Ammunition Plant RI/FS Workplan, Volume 2 Chemical Data Acquisition Plan or in the reference (U.S. Army Corps of Engineers, January 1990, ER-1110-263) used for QAPP procedures. According to good engineering practice, the COE should use quality assured containers. The use of quality assured containers will allow the separation of errors resulting from improper bottle preparation and contaminated distilled water.
2.	B-4	B-4 (B-7)	COE Response/M&E Comments (EPACMT-7). For Table B-7, the COE states Method 8330 (SW846) detects explosives. Three of the most common decomposition products of explosives (2-AM-DNT, 4-AM-DNT, and 1,3,5-TNB) are all compounds detected by Method 8330 and are listed in Table B-7. New comment: Table B-7. While the 8330 method is acceptable to the COE, 4-AM-DNT and 2-AM-DNT are not listed in the method.
3.	C-19 & C-20	C-19, C-20 (Table C-2)	New comment: "Long Horn" is to be spelled as one word: "Longhorn".

Metcalf & Eddy
An Air & Water Technologies Company

Memorandum

FILE: Ron Catchings
DATE: 06/30/92
TO: C. Herb Hickman, CIH
OFFICE:
FROM:
COMPANY:
SUBJECT: REVIEW COMMENTS, LONGHORN ARMY AMMUNITION PLANT SITE SAFETY AND HEALTH PLAN

In accordance with your memorandum of June 16, 1992, the subject Plan was reviewed for general compliance with the applicable Federal Regulations. The Plan is Volume 3 of the Longhorn Army Ammunition Plant RI/FS Work Plan, and is dated June 1992. A previous draft dated February 1992 was also reviewed by Metcalf & Eddy.

This Site Safety and Health Plan is a of higher-than-average quality compared to plans prepared by PRPs and their contractors. However, in this reviewer's view it still fails to meet the regulatory standard and -- partly as a result of that failure -- is much less useful to site workers than it could easily be.

Changes since the previous draft have decidedly improved the Plan. Section 3.0, Project Description, is reworded and substantially improved as a description of what is to be done. Very substantial improvements have also been made in the treatment of heat stress controls and decontamination.

The remaining failures to meet the regulatory standard are in two areas – not addressing hazard analysis by task, and presenting a number of minor errors numerous enough that it seems cumulatively to fail the regulatory standard of transmitting hazard information to the site workers.

1. The hazard assessment still does not address hazards by task, and thus does not appear to meet the regulatory standard of 29 CFR 1910.120(b)(4)(ii)(A), "A safety and health risk or hazard analysis for each site task and operation found in the workplan. A communication to U.S. EPA states that hazard analysis is provided and has been enlarged in this draft, but does not address the question of hazard analysis by task.

The hazard assessment section included (Section 7) discusses hazards in a general way including some hazards of contaminants reported for the site. However, there is no evidence that anyone has attempted to visualize all the work activities involved in each site task and identify the potential hazards in the tasks. It is in fact not possible for a site worker, preparing to carry out a site task, to access and review the hazard analysis that has been done to identify the hazards of that task and control measures appropriate to address those hazards of the task. Thus, the document is less user-friendly than it should be in failing the regulatory standard of hazard analysis by task.

2. Further, the chemical hazard evaluation contains enough errors and omissions to make its adequacy questionable. To this reviewer, it appears that the document will not really be a very useful source of hazard information (as opposed to site information) to the site worker. The noted examples or errors and inadequacies are as follows:

- None of the STEL values among TLVs or PELs are given.
- None of the SKIN notations or designations among TLVs and PELs are mentioned, although these are part of the TLV or PEL where they apply.
- TLV and PEL for 1,3-Dinitrobenzene given as 0.15 mg/m3 rather than 0.15 ppm, which is approximately 1 mg/m3;
- The PEL given for arsenic is the 0.5 mg/m3 PEL for organic arsenic, with no mention of the much lower 0.01 mg/m3 OSHA PEL for inorganic arsenic.
- The exposure guidelines listed for chromium are the 0.5 mg/m3 TLV and 1 mg/m3 PEL for less toxic forms of chromium, and no mention is made of the much lower limits (0.05 mg/m3 TLV, 0.1 mg/m3 ceiling OSHA PEL) for hexavalent chromium.
- Solvents are categorized as CNS depressants, narcotics, hepatotoxins or hematopoietic toxins with no explanation of what the words mean and no clue that CNS depression and narcosis are one and the same thing. The cardiac sentization property of trichloroethene could also be mentioned, though this reviewer would agree it probably has no importance at the site.

CH Hickman to R. Catchings, 6/30/92 - p.3

- The names 1,2-dichloroethane (p7-1), ethylene dichloride (tables 10a and 10b), and later ethylene chloride (p8-2) are all three used without informing the reader in any way that they all refer to the same substance.

- Similarly, dichloromethane is listed by both that name and as methylene chloride in tables, with toxicity data given only by the name methylene chloride.

- Toxicity info should cover methemoglobinemia effects (chemical asphyxia), which are an important feature of nitrate/nitrite toxicity and dinitrobenzene toxicity and also a feature of TNT and DNT toxicity, to which certain individuals may be quite sensitive.

- "Dichlorobenzene TLV and PEL are given without indication which dichlorobenzene is meant (data are for para-) and without mentioning the proposed reduction in para-dichlorobenzene TLV because of carcinogenicity concern.

- A paragraph on metals hazards states that many metals are carcinogenic and states that metals are toxic by several routes of exposure, and makes generalizations about exposure control, but does not mention toxic effects other than carcinogenicity or permit the user to determine which of the listed contaminants are metals or to determine the toxic hazards of any particular metal.

- The section on Equipment Operation Hazards does not mention a single hazard, but merely restates that items of equipment "present inherent safety hazards" and references another manual for requirements.

RESPONSE TO COMMENTS
LONGHORN ARMY AMMUNITION PLANT (LHAAP)
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
WORK PLAN (Draft Final)

EPA

COMMENT NO.	SECTION	PAGE/ PARA	RESPONSE
1			Concur. All suspected pit and trench locations were previously investigated at this site. These data will be reviewed as a part of the Phase I RI to determine if any additional investigations are required for quantifying waste volumes to be addressed under interim or final remediation for the site. An accelerated schedule has been developed for making these determinations and for performing the Phase I round of ground-water sampling. Based on the findings of these Phase I actions, Phase II efforts will be proposed to obtain any required additional data and to begin interim remedial action design for soil and ground-water source control at the site. The text has been revised on the pages noted to the left.
	REVISIONS		
	4.6.1	4-36/1	
	4.6.2	4-37/2	
	4.6.2.3	4-40/4	
	4.6.2.3.2	4-41/2	
	4.6.3	4-41/3	
2			Concur. All waste line samples will be analyzed for the total list of parameters described in the introductory paragraph of Section 4.0. The text has been revised on the pages noted to the left.
	REVISIONS		
	4.7.2	4-46/1	
	4.7.2.1	4-46/2	
	4.9.2	4-59/3	
	4.9.2.1	4-61/2	
	Table 4-1	4-2	
3	3.6.7	3-109/ 1	The tentative schedule for evaluation for interim remedial action has been developed and is now included as Table 8-5 in revised Section 8.0.

4	3.10.2	3-183/ 1	The schedule for submitting the addendum for addressing the additional area at LHAAP 1 has been developed and is now included as Table 8-4 in revised Section 8.0.
5	4.0	4-3/ 1	Concur. Point of compliance wells are to aid in determining the lateral extent of ground-water contamination. Wording has been changed on the pages noted to the left.

REVISIONS

4.0	**4-3/1**
4.2.3	**4-13/1**

6	4.1.3 4.7.3 4.9.3 4.10.3 4.11.3 4.12.3		The general approach for cluster well monitoring a saturated zone will be to monitor at least the uppermost saturated zone to a maximum depth of 20 feet, which is the maximum well screen length to be used for any one well. The actual depth the uppermost saturated zone will be monitored will be determined by the depth at which a low permeability material is encountered. The lowermost saturated zone will also be monitored using a well screen no greater than 20 feet in length which will be set from the base of the lowermost confining material down to the base of the saturated zone. Any additional monitoring throughout the saturated zone will depend on the site conditions actually encountered. The philosophy for this general approach for well screen settings is to increase the likelihood of intercepting all possible densities of contaminants which may be present.

REVISIONS

4.1.3	**4-8/2**
4.2.2.2.1	**4-12/3**
4.3.2.3.1	**4-18/1**
4.4.2.4.1	**4-26/4**
4.4.2.4.1	**4-27/1**
4.4.2.4.1	**4-27/2**
4.5.2.3.1	**4-33/2**
4.7.3	**4-51/2**
4.8.2.3.1	**4-56/3**
4.9.3	**4-67/3**
4.10.2	**4-72/3**
4.11.3	**4-82/3**
4.12.3	**4-90/5**

7	4.6.1	4-34/ 1	All suspect pit and trench locations were investigated during previous investigations. These data will be reviewed as addressed in the response to Comment 1.

COMMENTS ON RI/FS WORK PLAN VOLUME 1:

NO.	SECTION	PAGE/ PARA.	COMMENT
1			COE's response to EPA's comment on section 4.6.2.: quantification of waste volumes should be calculated in the RI.
2			COE's response to EPA's comment on section 4.7.2.2 pg. 4-33: EPA again requests that organic compounds associated with the production of explosives be included in the analysis for the samples collected from the Former TNT Production area. Additionally, the term "contaminant of concern" is a term associated with risk posed by a site, therefore, is an inappropriate term as it is used in the response.
3	3.6.7	3-109/ 1	What is the tentative schedule for the evaluation for the interim remedial action?
4	3.10.2	3-183/ 1	What is the schedule for the submittal of the addendum to the RI/FS Work Plan to address the area recently identified?
5	4.0	4-3/ 1	Wells that may be installed along the point of compliance will not "characterize the extent of ground-water contamination" but rather will indicate whether ground water contamination is leaving the site. Additional wells would be required to determine the lateral extent of contaminated ground water.
6	4.1.3 4.7.3 4.9.3 4.10.3 4.11.3 4.12.3		The work plan states that additional wells may be installed during Phase II of the RI. However, the depth to which these wells will be installed is not clear. Will the wells be a maximum depth of 20 feet? Will the screening be a maximum of 20 feet. Please clarify.
7	4.6.1	4-34/ 1	Will all pit and trench locations be verified during the RI?

RESPONSE TO COMMENTS
LONGHORN ARMY AMMUNITION PLANT (LHAAP)
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
WORK PLAN (Draft Final)

TWC

Equipment Decontamination:

Concur. The CDAP has been revised to state that equipment decon will occur on-site.

Prevention of Cross-contamination during Drilling:

Concur. The CDAP has been revised to state that surface casings will be used in all wells.

Monitoring Well Screen Placement:

Concur in part. In order to monitor the "bottom" of an aquifer the following conditions must be met:

a. The aquifer must be homogeneous throughout.

b. The aquifer must be underlain be a readily identifiable clay layer.

c. There must have been sufficient near-surface contamination to allow for an unacceptable accumulation on top of this clay layer.

Any low permeability layer, even a thin lens of clay or silty sand, can act to retard downward migration of contaminants, and the chances of these contaminants reaching the "bottom" of an aquifer are very remote. We suggest that if the well monitoring the top of the aquifer is clean, and there is no or little evidence for sources of heavy compounds in the soil, then no additional wells need to be installed. Even heavy compounds like TCE do not just totally disappear from the shallow part of an aquifer.

Concur with the comment as it pertains to LHAAP 18 & 24. The gross contamination found here (methylene chloride) leaves unanswered questions about what other contaminants are present and the total depth to which they have migrated. It will be necessary to get below the methylene chloride contamination to see other volatile organic compounds which may be present. Cluster wells are desirable in this situation.

Keeping in mind the above discussion and the highly variable stratigraphy at LHAAP, the following general approach will be used for cluster well installation and ground-water monitoring during the RI. The general approach for monitoring a saturated zone will be to monitor at least the entire thickness of the uppermost saturated zone and the entire thickness of the lowermost saturated zone. Well screens will be a maximum of 20 feet in length. A low permeability material must be greater than 2 feet thick to be considered a possible aquiclude. The philosophy for this general approach for well screen settings is to increase the likelihood of intercepting all possible densities of contaminants which may be present. The following pages have been revised to clarify this well installation scheme.

Page/Para	Section
4-8/2	4.1.3
4-12/3	4.2.2.2.1
4-18/1	4.3.2.3.1
4-26/4	4.4.2.4.1
4-27/1	4.4.2.4.1
4-27/2	4.4.2.4.1
4-33/2	4.5.2.3.1
4-51/2	4.7.3
4-56/3	4.8.2.3.1
4-67/3	4.9.3
4-72/3	4.10.3
4-82/3	4.11.3
4-90/5	4.12.3

Location of Monitoring Wells:

Do not concur. This well location was added at the request of TWC during review of the draft Work Plan submittal. Ground-water impact has not been determined for this site. It was agreed that a well was needed within the waste unit to fully characterize any ground-water impact beneath the unit or to verify that no impact has occurred. If it is found that ground-water has been impacted, then the downgradient wells requested by EPA, and now requested by TWC, will be installed as part of the Phase II investigation for the site. No change.

Collection of Samples during Drilling:

Concur. Samples for chemical tests will not be taken from auger flights.

Paragraph 4.4.2.2 on page 4-24 has been revised to address the types and frequency of sampling to be performed in the 150-foot deep stratigraphic test borings. Soil samples for physical

analyses will be taken at a frequency of once every 5 feet for the entire thickness of each low permeability zone within the saturated zone encountered in the one boring which will be continuously sampled. Grab samples of the ground water will be taken once every 20 feet of boring advancement in each of the three 150-foot borings and will be analyzed for indicator parameters. Table 4-1 has been revised to reflect the additional ground-water samples.

Asbestos:

Concur. Asbestos testing has been added to the CDAP.

Management of Investigation-derived Wastes:

Exception to the statement that EPA/540/G-91/009 does not apply to RIs. It has been used in the past at other CERCLA sites and provides wise use of the federal funding required for this site. These are the same type of investigations discussed in the guidance document. Section 2.0 of the guidance document relates the requirements to CERCLA and the NCP. The strategy of the IDW management so as not to cause harm to human health or the environment and to utilize existing information about the site meets the criteria listed in 31 TAC 335.62. The Area of Contamination (AOC) concept is provided in the preamble to the NCP (55 FR 8760) and is in line with waste minimization policy of the federal government. The need for and type of remedial action for soil at a site will be decided by the regulatory agencies and the DOD. The sediments or soil cuttings will eventually receive treatment, if necessary, so there is no benefit from additional testing, containerization (when the cuttings are within the AOC), or treatment off-site.

The following revisions have been made in the IDW Management Plan:

a. All sediments and cuttings will be containerized.

b. Site Characterization tests of the borehole material will be used to determine if the solid material in the cuttings is within the TCLP regulatory concentration limits(s) for characteristically hazardous waste. This will be a much more stringent test than the TCLP and should give higher concentrations. If the samples from the borehole are above the TCLP regulatory concentration limit(s), then a TCLP analysis will be performed on a composite soil sample of the cuttings to determine the waste classification.

c. Until the cuttings are classified as hazardous waste, they will be stored within the AOC. If the TCLP test indicates that the cuttings are hazardous waste, then the containers will be moved to the Longhorn RCRA 90-day storage area to await disposal.

d. Uncontaminated IDW cuttings will be spread on the described previously.

e. Contaminated non-hazardous cuttings will be stored on site until treatment during the site remedial action.

f. IDW water will be containerized and stored on-site (except LHAAP 18 & 24) until test results are received. Uncontaminated water will be disposed of at the on-site wastewater treatment plant.

g Contaminated non-hazardous water will be stored on-site for treatment during the site remedial action.

Consultation with EPA and TWC Regarding Phase II Remedial Investigation:

Concur. A schedule for submitting results of Phase I investigations as a secondary document and for developing an addendum to the Work Plan for performing Phase II investigations is provided are now provided in revised Section 8.0 of the Work Plan.

LONGHORN ARMY AMMUNITION PLANT
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
TWC COMMENTS AND MODIFICATIONS TO
JUNE 1992 WORK PLAN

Equipment Decontamination:

Two of the purposes of equipment decontamination are to ensure the reliability (quality assurance and quality control) of data by preventing cross-contamination and to prevent the spread of contaminants from a contaminated area of the site to another area. If contaminated equipment is taken outside a site which is being investigated to a "central" decontamination area, a potential will exist for spreading contaminants to previously uncontaminated areas, in which case additional RI work will be required to assess such areas. If locations and design of equipment decontamination areas are not approved by TWC, there is a likelihood that we will request additional Remedial Investigation (RI) work to be performed to assess the impact of RI activities on any additional areas which may be contaminated.

Prevention of Cross-contamination during Drilling:

TWC is not only interested in preventing cross-contamination from occurring from a shallow saturated zone to a deeper saturated zone, but also from contamination at the surface or in the vadose zone into the first saturated zone. Therefore, use of the auger flights alone is not adequate to prevent such contamination, since it is impossible to ensure that contaminated soils will not fall into the borehole from a contaminated area at the surface or above the zone being penetrated. TWC is willing to concede that surface casings may not be required for shallow soil borings where the hollow stem auger is left in the hole and then grouted from the bottom upward during removal; however, it is our policy that surface casings be installed in all monitoring wells to a depth of at least 5 feet, or through a suspected or obvious contaminated zone, whichever is greater, unless the uppermost saturated zone is encountered at less that 5 feet from the surface.

Monitoring Well Screen Placement:

The TWC considers a confining zone (or "confining material", as used in the work plan) to be the unsaturated zone which underlies a saturated zone. It is inconceivable that a confining (non-transmissive) zone will not be encountered beneath a saturated zone. If the saturated zone is greater than 20 feet in thickness, cluster wells will be required to monitor, at a minimum, the upper 20 feet and the lower 20 feet of the saturated zone. Monitoring only the upper 20 feet of a saturated zone is unacceptable.

Location of Monitoring Wells:

Monitoring wells are required at a disposal site to determine whether contaminants from the site have entered ground water; and if so, whether the contaminated ground water has migrated out of the site; and if so, how far the contaminants have migrated and at what rate they are migrating. Placement of a well through the waste in a site as proposed for LHAAP-17) can only be valuable in determining whether contaminants have migrated vertically into the underlying ground water, or came from some other upgradient source. If very shallow ground water is expected at a site (as at LHAAP-17), and waste with any water-soluble constituents have been disposed at the site, it is almost a foregone conclusion that contaminated ground water will be encountered beneath the site. If the uppermost ground water is found at a deeper depth, there is a risk of creating a conduit for vertical migration of contaminants by installing such a well. The proposed well placement also still leaves the ground water downgradient of at least one burn pit without adequate monitoring. Therefore, it is recommended that one or preferably two wells be installed around the edge of the northwest boundary of LHAAP-17 instead of through the suspected waste disposal area inside the perimeter of the site.

Collection of Samples during Drilling:

Samples of cuttings taken from auger flights are virtually useless for environmental investigations, and the sampling method described at section 4.1.1.3 should not be used. Continuous samples should be collected using a core barrel, Shelby tube, or split spoon sampler. If the formation consists of such unconsolidated or saturated material that the sample cannot be recovered, this fact should be noted on the drilling log.

Asbestos:

Asbestos is listed as a hazardous substance in 40 CFR §302.4. There were visible indications that building debris disposed in the "inert burning grounds" (LHAAP-1) contained asbestos. While asbestos is primarily an airborne hazard, it could become a health hazard to workers at the site during future remedial action if material has to be handled or moved with heavy equipment. Therefore, it is recommended that asbestos be included as a contaminant of concern in the investigation of that site.

Management of Investigation-derived Wastes:

The EPA guidance document (EPA/540/G-91/009) included as Appendix C-1 to Volume 2 of the work plan applies to CERCLA Site Inspections (SI's), not to Remedial Investigations (RI's). Hazardous waste determination and waste classification procedures required by TWC regulations (see 31 TAC §335.62 and 335.6, respectively) must be

complied with for all wastes generated during RI's. The following procedures should be used:

(1) Investigation generated wastes should be containerized immediately upon being generated.

(2) Containers should be clearly marked with adequate identification so that the contents can be related to laboratory analysis data obtained during the RI.

(3) Containers should be securely stored at each site (on pallets and covered with plastic, at a minimum), or may be stored at a secure site at the facility if a secure location is not available at the site of generation.

(4) (a) If, after review of analytical data from the laboratory, it is determined that particular containers of waste are not contaminated, they may be returned to the site from which they were generated and spread on the ground as proposed in the work plan (soils) or placed in the on-site waste water treatment facility (water).

(b) If a particular container of waste is determined to be contaminated, but is not hazardous waste, the waste should be stored at the site until it is classified according to TWC rules, and then treated along with other similar wastes at the site during remedial action. A more permanent storage facility will need to be constructed if remedial action will not begin sooner than one year.

(c) If any particular wastes are determined to be hazardous waste, they must be handled as hazardous wastes as described in the work plan.

Consultation with EPA and TWC Regarding Phase II Remedial Investigation:

As Lisa Price discussed in her May 29, 1992 letter, it is requested that the results of Phase I be submitted as a secondary document so that EPA and TWC will have the opportunity to review the data and offer recommendations for Phase II work. It is likely that an amendment to the RI Work Plan will be required prior to the start of Phase II field work.

TELEFAX HEADING SHEET

O: NAME: LISA ALICE

ORGANIZATION: EPA

VOICE TELEPHONE: (214) 655-6735 TELECOPIER#: FX 6460

DTG: 130800 AUG 92 CLASSIFICATION: U

NOTES: COPY OF DERPMIS

FROM:

LONGHORN ARMY AMMUNITION PLANT

MARSHALL, TEXAS 75671-1059

NAME: LYNN MUCKELRATH

ORGANIZATION: SMCLO-EV TELEPHONE: DSN 956-2980
A.C. 903-679-"

2 PAGES ARE BEING TRANSMITTED (NOT INCLUDING THIS COVER PAGE).

SAFETY IS #1 AT LONGHORN

DERPMIS SITE/DESCRIPTION LISTI

Installation: LONGHORN AAP

005600

Site Name	Site Description
LHAAP-001	INERT BURNING GROUNDS (SWMU 1)
LHAAP-002	VACCUM TRUCK OVERNITE PARKING LOT
LHAAP-003	BUILDING 722-PAINT SHOP
LHAAP-004	LHAAP PILOT WASTEWATER TREATMENT PLANT
LHAAP-005	POWER HOUSE BOILER POND
LHAAP-006	BUILDING 54F SOLVENT
LHAAP-007	BUILDING 50G DRUM PROCESSING
LHAAP-008	SEWAGE TREATMENT PLANT
LHAAP-009	BUILDING 31-W DRUM STORAGE
LHAAP-010	SUS TNT BURIAL SITE AT AVE P&Q(SWMU 11)
LHAAP-011	ACTIVE LANDFILL (SWMU 12)
LHAAP-012	SUS TNT BET ACTIVE&OLD LANDFILL(SWMU 13)
LHAAP-013	AREA 54W BURIAL SITE (SWMU 14)
LHAAP-014	AREA 49W DRUM STORAGE
LHAAP-015	OLD LANDFILL (SWMU 16)
LHAAP-016	NO 2 FLASHING AREA BRN GROUND(SWMU 17)
LHAAP-017	BRNG GRND/ROCKET MOTOR W/OUT PD(SWMU 18)
LHAAP-018	CONSTRUCTION MATERIALS LANDFILL — Is this old Landfill
LHAAP-019	SOUTH TEST AREA/BOMB TEST AREA(SWMU 27)
LHAAP-021	FORMER TNT PRODUCTION AREA(SWMU 29)
LHAAP-022	TNT RED WATER PIPELINE ← part of production area
LHAAP-023	BUILDING 707-STORAGE AREA PCBS
LHAAP-024	FORMER TNT WASTE DISPOSAL PLT(SWMU 32)
LHAAP-034	BUILDING 701 PCB STORAGE
LHAAP-035	SUMPS (192) VARIOUS
LHAAP-036	EXPLOSIVE WASTE PADS (27)
LHAAP-037	QUALITY ASSURANCE LABORATORY-BLDG 29-A
LHAAP-038	24X HOLDING AREA
LHAAP-039	25X WASHOUT PAD
LHAAP-040	AIR CURTAIN DESTRUCTOR
LHAAP-041	OPEN BURNING CAGE 3 in BG 3/ Rocket Motor Washout
LHAAP-042	OPEN BURNING PAN
LHAAP-043	FORMER UNLINED EVAP POND (SWMU 24)
LHAAP-044	BUILDING #41-X
LHAAP-045	MAGAZINE AREA
LHAAP-046	PLANT 2/PYROTECHNIC OPERATION
LHAAP-047	PLANT 3/PRODUCES MOTOR ASSEMBLIES
LHAAP-048	Y AREA/PRODUCES HAND SIGNAL ASSEMBLIES
LHAAP-049	FORMER ACID PLANT
LHAAP-050	FORMER WASTE DISPOSAL FACILITY — ?
LHAAP-051	PHOTOGRAPHIC LABORATORY/BLDG #60B
LHAAP-052	MAGAZINE AREA
LHAAP-053	STATIC TEST AREA
LHAAP-054	GROUND SIGNAL TEST AREA (Site XX)
LHAAP-055	SEPTIC TANK (10)
LHAAP-056	VEHICLE WASH RACK & OIL/WATER SEPERATOR
LHAAP-057	RUBBLE BURIAL SITE

005601

LHAAP-058	MAINTEN..CE COMPLEX
LHAAP-059	STORAGE BUILDING #725
LHAAP-060	FORMER STORAGE BUILDING #411 & #714
LHAAP-061	WATER TREATMENT PLANT
I P-062	BUILDING #43X--
L..AP-063	BURIAL PITS — ? Possibly 8, 10, 11, 13, 14
LHAAP-064	TRANSFORMER STORAGE
LHAAP-065	BUILDING #209
LHAAP-066	TRANSFORMERS
LHAAP-067	ABOVE GROUND STORAGE TANK
LHAAP-068	MOBILE STORAGE TANK
LHAAP-069	UNDERGROUND STORAGE TANK

005602

DEPARTMENT OF THE ARMY
LONGHORN/LOUISIANA ARMY AMMUNITION PLANTS
MARSHALL, TEXAS 75671-1059

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REPLY TO
ATTENTION OF

September 03, 1992

SMCLO-EV

SUBJECT: Meeting, Longhorn Army Ammunition Plant, for Technical Review Committee (TRC) and Program Managers - September 15, 1992.

Environmental Protection Agency
ATTN: Lisa M. Price (6H-ET)
1445 Ross Avenue
Dallas, Texas 75202

Dear Ms. Price:

Enclosed is a tentative agenda for the TRC and Program Manager's Meetings. This will be the third meeting for the TRC, and we hope that you will be able to attend.

If you have any questions or suggestions regarding the meeting or agenda, contact Mr. Lynn Muckelrath (903) 679-2980.

Sincerely,

Robert W. Bringman
Lieutenant Colonel, U.S. Army
Commanding Officer

Enclosure

LONGHORN ARMY AMMUNITION PLANT MEETING AGENDA

MEETING: PROGRAM MANAGERS MEETING

LOCATION: LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS BLDG. 703

DATE / TIME: SEPTEMBER 15, 1992 / FOLLOWING TRC

SIGN IN: AT ENTRANCE OF LHAAP THERE IS A GATE HOUSE WHERE YOU SIGN IN. THE GUARD WILL ISSUE A TEMPORARY BADGE. IF YOU BRING A CAMERA PLEASE REQUEST A CAMERA PERMIT.

AGENDA

I. COMMENTS & STATUS.- WORK PLAN, R.I., ADDITION OF SUMPS ON FFA.

II. FIELD TRIP- MR. BICKMAN WOODS WILL BE AVAILABLE TO SHOW AND TELL TO THE BEST OF HIS MEMORY.

LONGHORN ARMY AMMUNITION PLANT
MEETING AGENDA

MEETING: TECHNICAL REVIEW COMMITTEE (TRC)

LOCATION: LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS BLDG. 703

DATE / TIME: SEPTEMBER 15, 1992 / 9:00 A.M.

SIGN IN: AT ENTRANCE OF LHAAP THERE IS A GATE HOUSE WHERE YOU SIGN IN. THE GUARD WILL ISSUE A TEMPORARY BADGE. IF YOU BRING A CAMERA PLEASE REQUEST A CAMERA PERMIT.

AGENDA

I. INTRODUCTION- SPECIAL GUESTS & NEW MEMBERS. MR. BICKHAM WOODS, WHO WORKED ON LONGHORN FROM 1948 TO 1983 IS EXPECTED TO ATTEND.

II. STATUS- WORK PLAN & REMEDIAL INVESTIGATION.

III. OPEN FORUM- Q& A SESSION ON WORKPLAN, INVESTIGATION, ETC...

005605

Technical Review Committee
Meeting Sign-In
March 10, 1992

Name	Representing	Phone Number
Lisa Marie Price	U.S. EPA	(214) 655-6735
Clif Warren	Corps of Engineers	(918) 581-6114
Deborah Fitzgerald	Corps of Engineers	(817) 334-3221
Wade Anderson	Corps of Engineers	(918) 581-6106
ROBERT BRINGMAN	LONGHORN AAP	(903) 679-2100
C.R. SMINK	THIOKOL LONGHORN	(903) 679-2656
Tony M. Williams	City of Marshall	(903) 935-4415
Michael A. Moore	T.W.C.	(512) 463-7797
Wesley G. Newberry	T. W. C.	(512) 463-8566
Carl W Adams	City of Ceredo	903-789 3320
PHILIP F. SMITH	METCALF & EDDY (EPA)	713-690-2585
RONALD C. CATCHINGS	Metcalf & Eddy (EPA)	713-690-2585
Doyle Williams	LOUISIANA AAP	318-459-5708
RC LEANDER	THIOKOL - LONGHORN	(903) 679-2704
CYRIL ONEWOKAE	HQ, AMCCOM, AMSMC-EQE	309 782-1350
LYNN MUCKELRATH	LONGHORN AAP SMCLO-EV	(903) 679-2980

005606

SEP 14 1992

CERTIFIED MAIL: RETURN RECEIPT REQUESTED P773 283 206

Lynn Muckelrath, Project Manager
Longhorn Army Ammunition Plant
ATTN: SMCLO-EN
Marshall, Texas 75671-1059

Dear Lynn,

Pursuant to the Federal Facility Agreement (FFA) for the Longhorn Army Ammunition Plant (AAP), EPA is conveying with this letter the final approval of the Remedial Investigation/Feasibility Study (RI/FS) Work Plan dated June 1992, incorporating the revised pages and sections submitted to EPA on August 12, 1992, pursuant to EPA's conditional approval conveyed on July 10, 1992.

If you have any questions this or any other matter, please contact me at (214) 655-6735.

Sincerely,

Lisa Marie Price
Remedial Project Manager
Texas Enforcement Section

cc: copy sent via Panafax

Ft. Worth District Corps of Engineers
Attn: CESWF-ED-GH (Deborah Fitzgerald)
P.O. Box 17300
819 Taylor Street Room 7A37
Ft. Worth, TX 76102-0300

Cyril O. Onewokae
HQ, AMCCOM
AMSMC-EQE
Rock Island, IL 61299-6000

005607

Texas Water Commission
Mike Moore, Superfund
Pollution Cleanup Division
P.O. Box 13087
Capital Station
1700 N. Congress Avenue
Austin, Texas 78711-3087

Tulsa District Corps of Engineers
P.O. Box 61
Attn: D. Wade Anderson
CESWT-EC-GP
Tulsa, OK 74121-0061

005608

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

September 14, 1992

CERTIFIED MAIL
P 756 722 110
RETURN RECEIPT REQUESTED

Lynn Mucklerath, Project Manager
Longhorn Army Ammunition Plant
Attn: SMCLO-EN
Marshall, Texas 75671-1059

Re: Longhorn Army Ammunition Plant
Remedial Investigation/Feasibility Study (RI/FS) Work Plan

Dear Mr. Muckelrath:

Texas Water Commission (TWC) staff have completed its review of the Army's work plan revisions and responses to our comments which were received by letter dated August 12, 1992. The TWC hereby approves the Work Plan for RI Phase I activities, as revised.

According to the revised schedule, Phase I field investigations are to commence this month and be completed in January, 1993. If you have any questions or additional comments, please contact me at (512) 908-2483.

Sincerely yours,

Michael A. Moore
RI/FS II Unit
Superfund Investigation Section
Pollution Cleanup Division

MM:

cc: D. Wade Anderson, COE Tulsa District
Deborah Fitzgerald, COE Ft. Worth District
Lisa Price (6H-ET), EPA Region VI.

005609

OCT 6 1992

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

P773 283 211

Lynn Muckelrath, Project Manager
Longhorn Army Ammunition Plant
ATTN: SMCLO-EN
Marshall, Texas 75671-1059

Dear Lynn,

Enclosed please find a copy of a memorandum from EPA Headquarters regarding considerations in ground water remediation at Superfund sites and RCRA facilities dated May 27, 1992. This memorandum is to clarify and expand EPA's general policy concerning remediation of contaminated ground water, especially with regard to nonaqueous phase liquid (NAPL) contaminants.

I am sending a copy of this memorandum to you because I believe it solidifies EPA's position with respect for the early or interim remedial action at the UEP/Burning Ground No. 3 site, where significant ground water contamination has been documented. Pages 6 through 8 of the memorandum outline recommended activities that should/will prevent or minimize further migration of the contaminants. Currently, vertical migration of the contaminants at the UEP site have been detected, therefore, EPA requests that the early or interim action for the UEP/Burning Ground No. 3 site be implemented as soon as possible. EPA will work with you and the Corps of Engineers on expediting the review and approval of work plans for the investigation and on expediting the initiation of the early or interim action.

If you have any questions this or any other matter, please contact me at (214) 655-6735.

Sincerely,

Lisa Marie Price
Remedial Project Manager
Texas Enforcement Section

Enclosure

cc: Ft. Worth District Corps of Engineers
Attn: CESWF-ED-GH (Deborah Fitzgerald)
P.O. Box 17300
819 Taylor Street Room 7A37
Ft. Worth, TX 76102-0300

6H-ET
HiH 10/6/92

005610

Cyril O. Onewokae
HQ, AMCCOM
AMSMC-EQE
Rock Island, IL 61299-6000

Texas Water Commission
Mike Moore, Superfund
Pollution Cleanup Division
P.O. Box 13087
Capital Station
1700 N. Congress Avenue
Austin, Texas 78711-3087

Tulsa District Corps of Engineers
P.O. Box 61
Attn: D. Wade Anderson
CESWT-EC-GP
Tulsa, OK 74121-0061

005611

OCT 13 1992

CERTIFIED MAIL: RETURN RECEIPT REQUESTED P773 283 212

Lynn Muckelrath, Project Manager
Longhorn Army Ammunition Plant
ATTN: SMCLO-EN
Marshall, Texas 75671-1059

Dear Lynn,

On August 13, 1992, you provided a copy of a DERPMIS Site/Description Listing to EPA and TWC. Identified on this DERPMIS list for the Longhorn Army Ammunition Plant (AAP) are 69 sites, 15 of which are identified for investigation and possible response actions pursuant to the Federal Facility Agreement (FFA) for Longhorn AAP.

In order to completely characterize Longhorn AAP, each site identified on the DERPMIS list, excluding those currently included under the FFA, must be investigated and 1) eliminated based on existing information that no release or threat of release of hazardous substances exists at the site, 2) eliminated based on information generated during the investigation that documents that no release or threat of release of hazardous substances exists, or 3) included under the FFA for investigation and possible response actions. The results of such investigations and the determination that releases or potential releases are or are not occurring must be formally conveyed to EPA and TWC. Therefore, EPA requests formal resolution of the DERPMIS list.

If you have any questions this or any other matter, please contact me at (214) 655-6735.

Sincerely,

Lisa Marie Price
Remedial Project Manager
Texas Enforcement Section

cc: copy sent via Panafax

Ft. Worth District Corps of Engineers
Attn: CESWF-ED-GH (Deborah Fitzgerald)
P.O. Box 17300
819 Taylor Street Room 7A37
Ft. Worth, TX 76102-0300

005612

Cyril O. Onewokae
HQ, AMCCOM
AMSMC-EQE
Rock Island, IL 61299-6000

Texas Water Commission
Mike Moore, Superfund
Pollution Cleanup Division
P.O. Box 13087
Capital Station
1700 N. Congress Avenue
Austin, Texas 78711-3087

Tulsa District Corps of Engineers
P.O. Box 61
Attn: D. Wade Anderson
CESWT-EC-GP
Tulsa, OK 74121-0061

DEPARTMENT OF THE ARMY
LONGHORN/LOUISIANA ARMY AMMUNITION PLANTS
MARSHALL, TEXAS 75671-1059

005613

REPLY TO
ATTENTION OF

December 01, 1992

SMCLO-EV

SUBJECT: Meeting, Longhorn Army Ammunition Plant, for Technical Review Committee (TRC) and Program Managers - December 16, 1992

Environmental Protection Agency
ATTN: Lisa M. Price (6H-ET)
1445 Ross Avenue
Dallas, Texas 75202

Dear Ms. Price:

Enclosed is a tentative agenda for the TRC and Program Manager's Meetings. This will be the fourth meeting for the TRC, and we hope that you will be able to attend.

If you have any questions or suggestions regarding the meeting or agenda, contact Mr. Lynn Muckelrath (903) 679-2980.

Sincerely,

Robert W. Bringman
Lieutenant Colonel, U.S. Army
Commanding Officer

Enclosure

LONGHORN ARMY AMMUNITION PLANT MEETING AGENDA

MEETING: TECHNICAL REVIEW COMMITTEE (TRC) AND PROGRAM MANAGERS

LOCATION: LONGHORN ARMY AMMUNITION PLANT MARSHALL , TEXAS BLDG. 703

DATE / TIME: DECEMBER 16, 1992 / FOLLOWING TRC

SIGN IN: AT ENTRANCE OF LHAAP THERE IS A GATE HOUSE WHERE YOU SIGN IN. THE GUARD WILL ISSUE A TEMPORARY BADGE. IF YOU BRING A CAMERA PLEASE REQUEST A CAMERA PERMIT.

AGENDA

I. COMMENTS & STATUS.- .

A. FIELD WORK
B. PRELIMINARY ANALYSIS / RESULTS FROM WELL MONITORING
C. NEW CONTRACT
D. FUNDING ISSUES
E. SUMPS & MISCELLANEOUS ISSUES