FINAL
FIRST FIVE-YEAR REVIEW
FOR THE
ROCKWOOL INDUSTRIES, INC. SUPERFUND SITE
BELTON, BELL COUNTY, TEXAS

September 2012

Prepared by:

REGION 6
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
1445 Ross Avenue
Dallas, TX 75202-2733

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Determinations

I have determined that the remedy for the Rockwool Industries, Inc. Superfund Site is protective of human health and the environment because the waste material and contaminated soils have been excavated, consolidated and capped, or capped in place. Because the completed remedial actions and monitoring program for the Rockwool site are considered protective for the short term, the remedy for the site is protective of human health and the environment and will continue to be protective if the action items identified in this report are addressed.

Pamela Phillips
Acting Director
Superfund Division
U.S. Environmental Protection Agency Region 6

9/21/12
Date

CONCURRENCES

FIVE-YEAR REVIEW
Rockwool Industries, Inc. Superfund Site
EPA ID# TXD06637964

By: _____ Date: _____
U.S. EPA
Remedial Project Manager
Arkansas/Texas Section
Remedial Branch, Superfund Division

By: _____ Date: _____
Carlos Sanchez, U.S. EPA
Chief, Arkansas/Texas Section
Remedial Branch, Superfund Division

By: _____ Date: _____
George Malone, Site Attorney
Superfund Branch
Office of Regional Counsel

By: _____ Date: _____
Mark A. Peycke, Chief
Superfund Branch
Office of Regional Counsel

By: _____ Date: _____
Charles Faultry
Associate Director, Remedial Branch
Superfund Division

By: _____ Date: _____
Acting Deputy Director, Superfund Division

Routing and Concurrence Slip	Begin Routing Date: 09/14/2012
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5. Mark Peycke	MP	09/20/2012
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7. Deborah Greenwell	DG	09/20/2012
8.		

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Carlos Sanchez	Phone Number: 214.665.8507

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List of Acronyms

ACB	Articulated concrete block
ALM	Adult Lead Model
ARARs	Applicable or Relevant and Appropriate Requirements
As	Arsenic
CC	Containment cell
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMP	Corrugated metal pipe
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSP	Cemetery Shot Pile
CY	Cubic yard
DSP	Dangerfield Slag Pile
ECOP	Environmental Condition of Property
EVL	Evaporation lagoon
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
FWQC	Federal Water Quality Criteria
FM 93	Farm-to-Market Road 93
GEMS	Geographic Exposure Modeling System
GM	Geometric mean
GSD	Geometric standard deviation
GW PRG	Groundwater Preliminary Remediation Goal
HHRA	Human Health Risk Assessment
HI	Hazard Index
LLDPE	Linear low-density polyethylene
LRB	Leon River bank
Matcon	Modified Asphalt Technology for Waste Containment
MCL	Maximum Contaminant Level
mg/l	Milligrams per liter
msl	Mean sea level
MSSL	Medium-Specific Screening Levels
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NSP	North Shot Pile
O&M	Operation and Management
OSWER	Office of Solid Waste and Emergency Response
OU2	Operational Unit #2
Pb	Lead
PbB	Blood lead level
PRG	Preliminary Remediation Goals

List of Acronyms

RA	Remedial Action
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RRS	Risk Reduction Standards
RSL	Regional Screening Levels
RWI	Rockwool Industries, Inc.
SARA	Superfund Amendments and Reauthorization Act
Sb	Antimony
SPLP	Synthetic Precipitation Leaching Procedure
SSP	South Shot Pile
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TBC	To Be Considered
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity Characteristic Leaching Procedure
TNRCC	Texas Natural Resource Conservation Commission
TPDES	Texas Pollutant Discharge Elimination System
TSWQS	Texas Surface Water Quality Standards
TVR	Taylor's Valley Road
USACE	United States Army Corps of Engineers
USC	United States Code
µg/L	Micrograms per liter

Executive Summary

The first five-year review of the Rockwool Industries, Inc Superfund Site located in Belton, Bell County, Texas was completed in April 2011. The results of the five-year review indicate that the remedy completed to date is currently protective of human health and the environment. Overall, the remedial actions performed appear to be functioning as designed.

The Record of Decision (ROD) for the site was signed in September 2004. Because the ROD was signed after the Superfund Amendments and Reauthorization Act (SARA) in 1986, and because hazardous substances remain onsite above levels that allow for unlimited use and unrestricted exposure, performance of the five-year review for the Rockwool site is required by statute. The remedy for the site included the excavation, consolidation and capping, or capping in place of waste materials and contaminated soils, and institutional controls. The ROD was modified by an Explanation of Significant Differences such that only a partial excavation and consolidation was completed, and the remaining waste materials and contaminated soils were covered in place. The trigger for the five-year review was the beginning of the Remedial Action on February 15, 2005.

Several issues were identified which could impact the protectiveness of the remedy. The remedy for the Rockwool site is protective of human health and the environment because the waste material and contaminated soils have been excavated, consolidated and capped, or capped in place, and is protected from erosion. The remedy will remain protective if the action items identified in this review are addressed.

Five Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Rockwool Industries, Inc. Superfund Site

EPA ID *(from WasteLAN)*: TXD006637964

Region: EPA Region 6 | **State:** Texas | **City/County:** Belton/Bell County

SITE STATUS

NPL status: ☒ Final ☐ Deleted ☐ Other (specify)

Remediation status (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete

Multiple OUs? ☒ YES ☐ NO | **Construction completion date:** September 28, 2005

Has site been put into reuse? ☒ YES ☐ NO

Only a portion of the site has been put into reuse.

REVIEW STATUS

Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____

Author name: EPA Region 6

Review period: February 24, 2011 to April 11, 2011

Date(s) of site inspection: March 17-18, 2011

Type of review:

☒ Statutory

☐ Policy

☐ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only

☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead

☐ Regional Discretion

Review number: ☒ 1 (first) ☐ 2 (second) ☐ 3 (third) ☐ Other (specify) _____

Triggering action:

☒ Actual RA Onsite Construction

☐ Actual RA Start

☐ Construction Completion

☐ Previous Five-Year Review Report

☐ Other (specify)

Triggering action date *(from WasteLAN)*: February 15, 2005

Due date *(five years after triggering action date)*: February 15, 2010

Issues:

1. The monitoring wells are no longer being used and several of them need repairs.
2. There are missing warning signs at the paved asphalt parking area and at the eastern and northern boundaries of the North Property.
3. There are trees growing out of the Articulated Concrete Blocks (ACB) in the Leon River bank (LRB).
4. The ACB has shifted at the toe of the LRB between the North Shot Pile and the capped Evaporation Lagoon (EVL).
5. Drainage corrugated metal pipes (CMPs) are partially clogged at the Cemetery Shot Pile (CSP), and in the stabilized LRB between the North Shot Pile and capped EVL.
6. The concrete outfall to the CMP in the stabilized LRB is cracked. The cracks are sufficiently large to possibly allow water to erode and undermine the outfall.
7. There is sparse vegetation along the western edge of the CSP and in areas of the capped in place waste materials and contaminated soils in the Central Property area.
8. There is active erosion near the western edge of the capped EVL. This erosion may be occurring over capped waste, and could also threaten the stability the ACB in the LRB.
9. Site inspections are not being conducted in a timely manner.

Five Year Review Summary Form

10. The state agency (TCEQ) has not taken over Operation and Maintenance (O&M) activities.

Recommendations and Follow-up Actions: Recommended further actions include continuing site operations, maintenance and monitoring as currently defined. In addition, the following actions are recommended.

1. All unused monitoring wells should be plugged and abandoned.
2. Install warning signs in the areas where they are missing.
3. Remove the trees growing out of the ACB as specified in the O&M Plan.
4. Monitor the ACB to avoid loss of blocks and erosion of the bank.
5. Clear out all the CMPs at the site.
6. Patch the cracks in the outfall for the CMP in the stabilized LRB.
7. In areas with capped waste and with sparse vegetation the vegetation needs to be re-established to provide erosion protection.
8. The erosion near the edge of the capped EVL should be repaired and addressed in a manner to reduce or prevent future erosion.
9. Site inspections should be conducted as specified in the Operations and Maintenance Plan and as specified in the institutional controls documents.

Protectiveness Statement(s): The remedy for the Rockwool site is protective of human health and the environment because the waste material and contaminated soils have been excavated, consolidated and capped, or capped in place, and is protected from erosion. Because the completed remedial actions and monitoring program for the Rockwool site are considered protective for the short term, the remedy for the site is protective of human health and the environment and will continue to be protective if the action items identified in this report are addressed.

1 Introduction

The purpose of a five-year review is to determine how well an existing remedial action is operating in order to protect human health and the environment, and to identify any problems or concerns that affect the protectiveness of the remedy currently or in the future. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) call for five-year reviews of certain remedial actions. The EPA policy also calls for a five-year review of remedial actions in some other cases. The statutory requirement to conduct a five-year review was added to CERCLA as part of the Superfund Amendments and Reauthorization Act (SARA) of 1986. The Environmental Protection Agency (EPA) classifies each five-year review as either statutory or policy depending on whether it is being required by statute or is being conducted as a matter of policy. The five-year review for the Rockwool site is required by statute.

As specified by CERCLA and the NCP, statutory reviews are required for sites where, after remedial actions are complete, hazardous substances, pollutants, or contaminants will remain onsite at levels that will not allow for unlimited use or unrestricted exposure. Statutory reviews are required for such sites if the ROD was signed on or after the effective date of SARA. CERCLA §121(c), as amended by SARA, states:

> If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

Under the NCP, the Code of Federal Regulations (CFR) states, in 40 CFR §300.430(f) (4) (ii):

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The Record of Decision (ROD) for the Rockwool Industries, Inc. Superfund Site was signed on September 30, 2004, to address waste materials and contaminated soils. The five-year review for the Rockwool site is required by statute because the ROD for the site was signed in 2004, after the effective date of SARA, and because materials remain onsite above levels that allow for

unlimited use and unrestricted exposure. Because the Rockwool site is a Superfund site, the EPA has regulatory authority. The triggering action for this review is the date the remedial action began; February 15, 2005. This is the first five-year review for the Rockwool site and was conducted during the period of February 24, 2011 through April 11, 2011 by the U.S. Army Corps of Engineers, Tulsa District, on behalf of EPA Region 6.

2 Site Chronology

A chronology of events and dates is included in **Table 1**, provided at the end of the report.

3 Background

This section describes the physical setting of the site, a description of the land and resource use, and the environmental setting. This section also describes the history of contamination associated with the site, the initial response actions taken, and the basis for each action.

3.1 Physical Characteristics

The Rockwool Industries facility occupies approximately 100 acres of land located at 1741 Taylors Valley Road in the eastern portion of Belton, Texas. The site is an abandoned mineral wool manufacturing facility. The site is comprised of three parcels, a 14-acre parcel identified as the North Property, an 80-acre parcel identified as the Main Process Area, and a 3-acre parcel situated between the North and Main Process areas called operable unit #2 (OU2). Part of the original 100 acre property is now the FM 93 right-of-way. The site is bounded by the Leon River to the north, Nolan Creek to the south, and is twice bisected, by Taylors Valley Road and FM 93. The site is bordered to the east by agricultural land, and to the west by commercial, and undeveloped private property. Adjacent west and east of the North Property is a cemetery and a concrete plant, respectively. The site and adjacent property are currently zoned for commercial/industrial use. The City of Belton desires to have the site restored to a beneficial use that would permit future commercial and/or industrial development (**CH2M HILL, 2003**). **Figure 1** shows the site location. **Figure 2** shows an aerial view of the site. **Figure 3** shows a plan view of the Rockwool site.

The area of the site addressed in the remedial action encompasses approximately 65 acres. The remediated site is now mostly covered with grass and is partially enclosed by a fence. The North Property contains the filled and covered evaporation lagoon, the covered remains of the North Shot Pile (NSP), the stabilized Leon River bank (LBR), and has eight groundwater monitoring wells. The Geer-Cemetery Area covers about 11 acres and contains the covered remains of the Cemetery Shot Pile (CSP), a concrete plant, and the East Belton Cemetery. The 3-acre OU2 area is being used to manufacture fiberglass tanks. The 37-acre Central Property contains the Matcon covered containment cell, waste materials and contaminated soils capped in place, and has 17 groundwater monitoring wells. The North Property has a small asphalt paved area which is used as a parking lot and material storage area. The 43-acre Non-Process Area south of FM 93 was part of the original property, but was not used during production at the Rockwool Industries (RWI) facility and required no remedial action, and is not being used. **Figure 4** shows the location of the monitoring wells.

Topography

The topography of the site is gently sloping; however, near Nolan Creek and near the Leon River, the banks are very steep, with a drop of approximately 30 feet to the water surface. Taylors Valley Road (TVR) acts as a drainage divide, with the area north of TVR draining to the Leon River, and the area south of TVR draining toward Nolan Creek. Additionally, manmade site features (landfill and shot-iron piles) create an irregular topography in portions of the North and Central Properties. Other areas of the site have been leveled and built-up, with large areas on both sides and adjacent to TVR overlain with a concrete or asphalt surface (**CH2M HILL, 2003**).

Surface Hydrology

The Leon River and Nolan Creek are located immediately adjacent to the site. Storm water runoff and perched groundwater discharge to these surface water features through engineered and natural drainage ways.

The Leon River and Nolan Creek have been identified as potential recreational use areas from previous investigations conducted at the site. Recreational fishing was observed on the Leon

River during the Superfund Site Inspection investigation, and during completion of the Remedial Investigation (RI). While the designated water uses of the Leon River are contact recreation, high-quality aquatic habitat, and public water supply, it is not suitable for swimming because of unsafe conditions such as high flow rate, unclear water, presence of high brush along the riverbanks, and steep banks limiting access to the river. TNRCC (now TCEQ) states that the designated water uses of Nolan Creek include non-contact recreation, high-quality aquatic habitat, and public water supply (**CH2M HILL, 2003**).

Floodplain

The Geer Property-Cemetery Area and the North Property are located on the south bank of the Leon River. The top of the embankment is at an approximate minimum elevation of 490 feet mean sea level (msl). The Leon River 100-year floodplain is at an approximate elevation of 488 feet msl, which is below the area's minimum elevation. Some of the waste removal work performed along the south bank of the Leon River occurred within areas below the 100-year floodplain elevation. This work replaced and covered unstable material with Articulated Concrete Blocks (ACB) and did not reduce the cross-sectional area of the floodway. The Nolan Creek 100-year floodplain is at an approximate elevation of 495 feet msl, which is below the minimum site elevation (**CH2M HILL, 2006**).

Geology

The site lies atop Quaternary alluvium and terrace deposits associated with the Leon River. The terrace deposits generally lie north of FM 93 and consist of limestone gravel, quartz, quartzite, chert, and jasper with varying amounts of clay and sand. The alluvial deposits, which lie south of FM 93, consist of calcareous silts and clays with high organic content, sand, and gravel. Underlying the Quaternary deposits is the Georgetown Formation. The Georgetown consists of a shale limestone interbedded with thin marl beds. It is moderately fractured, and weathered on its uppermost surface, and not known to contain solution cavities. A geologic profile of the site is shown in **Figure 5**.

Hydrogeology

The uppermost water-bearing zone at the site occurs at depths between 20 and 35-feet below ground surface within the coarse grain deposits of the Quaternary alluvium and terrace deposits, and within the weathered or top several feet of the underlying limestone. The saturated thickness of the water bearing zone is typically less than 3-feet, and it is not uncommon for many of the monitor wells to "go dry" while sampling. Consequently, the water-bearing interval is best described as a perched zone. Within the perched zone, groundwater flow patterns are influenced by the structure contour of the underlying limestone. Groundwater of Taylor's Valley Road generally flows north-northeast discharging through seeps to the Leon River. On the south side of Taylors Valley Road, groundwater flows to the south and southeast discharging through seeps to Nolan Creek (**CH2M HILL, 2003**). **Figures 6 and 7** show hydrogeologic cross-sections of the site.

Groundwater Beneficial Use

There are 7 domestic, 5 industrial, 3 general use (irrigation), wells within 1 mile of the site. **Figure 15** taken from the RI shows the locations of the wells. The nearest well in the perched zone is a domestic well, located approximately 0.5 mile to the west at 104 Elm Street. This well was sampled during past investigative activities and did not reveal any evidence of contamination. Several of these wells are screened in the perched zone and several are screened in the deeper zone. All evidence indicates that the ground-water bearing perched zone located at the site does not appear to be hydraulically connected to any offsite water bearing units. In 1990, Rockwool Industries, Inc. drilled a deep well to the deeper water bearing formation in a shale limestone which is part of the Georgetown Formation. The water analysis showed no resemblance to the shallow perched groundwater, proving no vertical communication between the two water bearing units. Also the potable aquifer in the area is located in the Travis Peak formation at about 600 feet below the perched aquifer, with positive evidence of no communication. The industrial area around the site is connected to city water from Lake Belton.

Poor and unreliable yields make the perched water zone an unlikely future drinking, irrigation or industrial water source. Additionally, given the land use designations and availability of water

from the City of Belton, future ground-water development onsite and in the areas down-gradient of the site is unlikely (**EPA, 2004**).

3.2 Land and Resource Use

The local population within a 4-mile radius of the site was quantified using the Geographic Exposure Modeling System (GEMS) during the preliminary assessment. A total population of zero was noted within a 0.25-mile radius. A total population of 27,313 was identified within a 4-mile radius of the site.

The Rockwool site is zoned for heavy industrial use. No residences are present within a 0.25-mile radius of the site. The City of Belton defines the site, in their current and future land use plan, as a heavy industrial and commercial property. Land uses near the Rockwool site consist of agricultural, commercial (trucking), cemetery, and mining (i.e., sand and gravel pit). The adjacent properties are zoned by the City of Belton for heavy industrial use (**CH2M HILL, 2003**). Currently, the City of Belton owns 97 of the 100 acres of the site.

3.3 History of Contamination

The Rockwool Industries Inc. (RWI) facility manufactured mineral wool insulation from the mid-1950s until February 1987. Previous land use is not known. The mineral wool was manufactured in blast furnaces using raw material such as slag from copper and antimony smelting, waste from limestone mining, as well as coke and basalt. The raw materials were melted in a coke-fired furnace and then extruded by blowing air over spinning drums to form fibers. The residue left in the furnace from the heating of the slag was a metal "shot" type material. This "spent iron shot" was the main waste type generated as part of the Rockwool production process. This material was piled in the NSP, the South Shot Pile (SSP), the Dangerfield Slag Pile (DSP), and the CSP.

During site operations, there were numerous solid waste management units that were used to dispose of process wastes. These included a Boiler Blowdown Pond, Stormwater Runoff Pond, Waste Oil Storage Tanks, On-site Landfill, Container Storage Area, Wastewater Blending Tank,

West Warehouse Container Storage Area, and the previously mentioned NSP and SSP. A Raw Water Make-up Pond and an Old Brine Pond also were used to dispose of wastes (**EPA, 2004**).

Pre-Remedial Action Site Contamination

Waste Material Characteristics

The NSP, SSP and DSP represent the three primary non-hazardous SWMUs at the site. A third shot pile, identified as the CSP straddled the property line between the adjacent cemetery and adjoining private property and within a drainage easement. Analysis of samples collected from the primary waste material piles indicated that in its current condition, arsenic and lead in the waste (shot, slag, and brick) have very low leachability. However, the leachability will significantly increase if the waste is broken into fine particles and if the pH of the aqueous solutions interacting with the waste is either highly acidic or highly alkaline. Analysis of samples collected from the CSP, NSP, SSP and the DSP revealed that antimony in the waste materials has higher leachability than arsenic and lead (**EPA, 2004**).

Surface Water and Sediment

Leon River- Surface water samples collected from 24 locations in the Leon River during the RI adjacent to and downstream of the seep sites revealed arsenic and lead concentrations above background levels. Analysis of sediment samples collected from the same 24 locations also revealed elevated levels of antimony, arsenic, and lead. However sediments in Leon River are rare and are limited to the south bank of the river. The majority of the channel bed consists of limestone bedrock. The location of the sediments close to the south bank is most likely the result of NSP waste material either being placed in the river during the facility's operating life or erosion of waste material from the site itself. The south bank of the river, north of the NSP, was also known to contain significant amounts of waste material entering the river at the time of the ROD (**EPA, 2004**).

Nolan Creek- Surface water samples collected from 20 locations in Nolan Creek adjacent to and downstream of the seep sites did not detect many of the metals observed in onsite soil or groundwater above the laboratory detection limit or above background levels. It should be noted that sediments are sparsely located in Nolan Creek and the majority of the stream channel flows

on the limestone bedrock. Also being farther away from the processing area, there is very little shot material present in the creek. Analysis of sediment samples collected from these same 20 locations revealed the presence of many of the same metals detected in onsite soil and groundwater; however, these same metals (which occur naturally in the environment) were also observed at comparable levels in the upstream sediment samples. Sediment concentration profile graphs developed for antimony, arsenic, and lead showed no increase in those areas downstream of the groundwater seep sites (**EPA, 2004**).

Groundwater

Antimony, arsenic, and lead in residual waste remaining in the former bag house dust impoundment represented the primary groundwater contaminant source. Analytical results for samples collected in the vicinity of the NSP, SSP and evaporation lagoon areas also indicated waste materials as a probable antimony and arsenic source. This conclusion is also supported by the arsenic results from the Toxicity Characteristic Leaching Procedure (TCLP) and antimony results from the Synthetic Precipitation Leaching Procedure (SPLP) tests. The TCLP results exhibited arsenic leachate concentrations up to 1.02 mg/L from fine waste material in the SSP. The SPLP results revealed antimony leachate concentrations up to 3.1 mg/L from the NSP samples. The absence of TCLP-arsenic in the NSP samples and the relatively low antimony concentration in the SPLP samples from the SSP are most likely the result of waste material variations not captured by the samples (**EPA, 2004**).

During the RI groundwater seep results showed that arsenic and antimony contaminated groundwater was seeping into the Leon River and Nolan Creek at concentrations greater than surface water quality standards. However, based on the groundwater seepage rates and surface water flow volumes observed, antimony and arsenic concentrations were estimated to attain equilibrium river concentrations within 10 to 100 feet from the point of entry into the Leon River (**EPA, 2004**).

3.4 Initial Response

With the adoption of Resource Conservation and Recovery Act (RCRA) regulations in May 1980, only the bag house dust waste was documented to exhibit hazardous characteristics, and in August 1980 RWI submitted a Part-A RCRA permit as a generator/disposal facility for

hazardous wastes with regard to the bag house dust wastes. According to a RCRA Part B permit application, the bag house dust impoundment had been used since 1970. RWI started using low concentration antimony slag as feed material for the furnaces in 1977, thus allowing the facility to operate as a "non hazardous" waste generator.

Until 1985, arsenic-contaminated bag house dust was generated during the manufacturing process (even though hazardous arsenic content was reduced and non-hazardous antimony content was increased). This dust was disposed of on-site in a surface impoundment and a landfill. The Bag House Dust Surface Impoundment (also known as Bag House Dust Landfill or "The Dust Pocket" - Solid Waste Management Unit 1) was closed as a landfill in 1988. This was discovered at the site in 1990. RWI proposed a closure plan for this onsite surface impoundment in April of 1990. In 1991, the hazardous wastes were removed.

In October 1991, the TNRCC (now TCEQ) issued a compliance plan and a Hazardous Waste Post-Closure Permit to RWI allowing the company to remove and dispose of contaminated soil, remove and stabilize sludge, and install clay covers where necessary. As part of the remediation effort they installed a groundwater recovery system to control and treat groundwater in the first saturated interval.

Although numerous on-site solid waste management units (SWMUs) from the RCRA Part A permit were closed by RWI, remediation of the Bag House Dust Surface Impoundment and the on-site general plant refuse landfill was not completed. The groundwater recovery system was abandoned and iron shot piles remained on site. RWI shut down the groundwater recovery and treatment system in September of 1994 due to financial problems.

The Preliminary Assessment was completed in December 1995 and the Site Investigation was completed in October of 1996. The RWI site was proposed to the National Priorities List (NPL) on March 6, 1998. The basis for proposing the site to the NPL was surface water as the major pathway of concern. Chemical analysis of sediment samples in the Leon River and in Nolan Creek indicated the presence of inorganics in concentrations above the release criteria. The Leon River was identified as a fishery and was subject to Level II concentrations of selenium. The

RWI site was placed on the NPL on September 29, 1998. The combined Remedial Investigation and Feasibility Studies commenced on September 30, 1998.

The EPA issued Notice Letters to PRPs to conduct the Remedial Investigation and Feasibility Studies (RI/FS). No response was received for identified parties as companies had become defunct or the notices were returned as undeliverable. No PRPs came forward to conduct the RI/FS. Thus EPA started the RI/FS as a Fund lead project. A new PRP search in May 2004 failed to find any additional viable PRPs other than those identified earlier (**EPA, 2004**).

3.5 Summary of Basis for Taking Action

The purpose of the remedial actions conducted at the Rockwool site was to protect public health and welfare, and the environment from releases or threatened releases of hazardous substances from the site. Remedial actions taken at the site were deemed necessary based on the results of the human health risk assessment (HHRA) presented in the RI/FS Report for the Rockwool site. The EPA evaluated the risks for potential ingestion, inhalation and dermal exposure of contaminants of concern (COCs) in soil, sediment, and surface water and groundwater.

The site contains shot material, waste and contaminated soil resulting from previous industrial processes. There were several large shot piles, and shot was scattered over the surface soil. Arsenic and lead in the waste (shot, slag, and brick) have very low leachability. However, the leachability will significantly increase if the waste is broken into fine particles, and if the pH of aqueous solutions interacting with the waste is either highly acidic or highly alkaline. Analysis of samples collected from the major shot piles (CSP, NSP, SSP and Dangerfield) reveal that antimony in the waste materials has higher leachability than arsenic and lead. The EPA's RI has shown that metals from the shot have leached into shallow groundwater over the years. Additionally, shot material has visibly entered the Leon River via erosion, and the metals associated with the shot (primarily antimony) were detected in fish tissue. **Figure 8** shows the antimony levels found in fish tissue sampling conducted during the RI. The distribution of these detected metals correlate with the boundaries of the site.

Based on the current and future site land use, four types of populations were identified and evaluated in the human health risk assessment (HHRA): industrial workers, swimmers and fishers in Nolan Creek, and fishers in the Leon River. No receptor scenarios that were evaluated for the site exceeded the upper end of the carcinogenic risk range ($1x10^{-4}$), so risks due to carcinogenic contaminants were not to be addressed; however, the industrial worker's noncancer hazard from direct contact with antimony in soil/waste from OU2 and the Central Property resulted in a hazard risk of 2.1 and 5.1, respectively, well above the EPA recommended index of 1.0. The adult fisher's non-carcinogenic hazard resulting from ingestion of Antimony in fish tissue from the Leon River is 3.7. These numbers suggest that current fishers in the Leon River and future workers on the site could have non-carcinogenic health hazards from exposure to antimony (**EPA, 2004**). Other COPCs identified in the Leon River and Nolan Creek fish are at the concentrations within the background concentration ranges (**CH2M HILL, 2003**). A summary of the estimated health risks is given in **Table 2**.

4 Remedial Actions

This section provides a description of the remedy objectives, selection, and implementation. It also describes the ongoing Operation and Management (O&M), and the overall progress made at the Rockwool site since the completion of the remedial action.

The selected remedy for the site included the excavation and consolidation in a containment cell, or covering in place of the waste materials and contaminated soils exceeding the remedial goals. The remedy also includes implementation of institutional controls at the site in order to protect the integrity of the containment cell, clay caps, monitor wells, culverts and interceptor trenches, and to prevent human exposure to contaminated ground water in shallow water bearing zone.

4.1 Remedy Objectives

Remedial Action Objectives (RAOs) specify the chemicals of concern (COCs), exposure routes, receptors, and Preliminary Remediation Goals (PRGs) for each affected medium. Arsenic, antimony, and lead are the COCs in surface soil. No COCs were identified in subsurface soils (below 2 feet), because a human health exposure pathway for direct contact is not present. The soils PRGs for the direct human health exposure pathway are 200 mg/kg for arsenic, 310 mg/kg

for antimony, and 1,754 mg/kg for lead. The RAOs for surface/subsurface soils and groundwater are:

- Prevent direct human contact (site workers) with surface soil/waste containing arsenic at concentrations above 200 mg/kg.
- Prevent direct human contact (site workers) with surface soil/waste containing antimony at concentrations above 310 mg/kg.
- Prevent direct human contact (site workers) with surface soil/waste containing lead at concentrations above 1,754 mg/kg.
- Prevent leaching and migration of arsenic from surface/subsurface soils/waste into groundwater and surface water resulting in arsenic concentrations exceeding 50 µg/L.
- Prevent leaching and migration of antimony from surface/subsurface soils/waste into groundwater and surface water resulting in antimony concentrations exceeding 6 µg/L.
- Prevent leaching and migration of lead from surface/subsurface soils/waste into groundwater and surface water resulting in lead concentrations exceeding 5µg/L.
- Prevent the migration of contaminated soil/waste into the Leon River through surface runoff and erosion.

No COCs were identified for surface water because the contaminants detected were within the EPA range of acceptable human risks. Therefore, RAOs and PRGs have not been developed.

Sediment and Biota RAOs and PRGs

No COCs were identified for sediment because a direct pathway for human health exposure is not present. However, risk estimates indicate a potential human health risk through consumption of fish from the Leon River. Potential risks through ingesting fish from Nolan Creek are associated with the background concentrations, not site related impacts. Evaluation of the Leon River surface water and sediment data indicate that elevated antimony in the fish can be attributed to elevated antimony concentrations in sediments along the Leon River bank adjacent to the site, and due to the groundwater seeps. The following RAO was developed to address human health risks posed by sediment through ingestion of fish:

- Remove sediment containing COCs at concentrations exceeding the sediment PRGs and prevent the transport of waste and contaminated material into the Leon River to an extent that the TSWQS are not exceeded.

Sediment PRGs were to be developed during the Remedial Design (RD) phase. However, bioassay analyses during the RD showed that the sediments (site wastes washed into the Leon River) are not toxic to biota thus no PRGs are needed. To be protective EPA was to remove all visible sediments in the Leon River adjacent to the site (**EPA, 2004**).

4.2 Remedy Selection

The selected remedy specified:

- Soil in areas where the concentration of antimony exceeds the calculated PRGs, including the CSP, North Property area, Central Property area and the sediment along the south bank of the Leon River, will be excavated and consolidated in an on-site containment cell.
- The containment cell will be an industrial landfill with multilayer construction which will prevent materials from leaching into the groundwater.
- After the CSP and North Property area have been excavated and contoured, a clay cover will be installed over the CSP and North Property area to prevent further runoff of the waste material to the Leon River, and to prevent surface water infiltration and subsequent leaching of contaminants to groundwater.
- A culvert and other drainage control features will be installed near the CSP boundary to control surface drainage and to prevent surface water runoff from contacting and transporting any materials remaining on site that do not exceed site PRGs.
- The remedy will minimize the erosion of additional contamination and prevent it from contacting the Leon River and contaminating sediment and aquatic life.
- In the Central Property area contaminants will be excavated and consolidated with other site waste in the containment cell.
- In order to protect the integrity of the containment cell, clay caps, monitor wells, culverts and interceptor trenches, and to prevent exposure to contaminated groundwater in shallow water-bearing zone, institutional controls (ICs) will be implemented.

- Current and future owners of the site must agree to provide deed restrictions to the affected property, as appropriate or as allowed by law that addresses soil and groundwater (**EPA, 2004**).

An Explanation of Significant Differences (ESD) was issued in August 2005 which modified the remedy so that waste materials and contaminated soils in the Central Property in excess of the capacity of the containment cell were to be capped in place (**EPA, 2005**). The ESD also documented the expansion of institutional controls to restrict the use of the Central Property where contaminated soils were capped in place.

4.3 Remedy Implementation

The major components of the selected remedy involved the excavation and consolidation of waste materials and contaminated soils in a Matcon covered containment cell, the covering of unexcavated waste materials and contaminated soils with a clay and topsoil cap, and the stabilization of bank of the Leon River with ACB. Waste materials and contaminated soils contaminated with antimony, lead and arsenic with levels greater than PRGs were either excavated and consolidated in the containment cell, or covered in place.

Construction Activities

Remedial action (RA) at the site started on February 15, 2005. The Remedial Action (RA) completed is summarized below for each area of the site.

Geer Property/Cemetery Area

A total of 218 cubic yards (CY) of waste material and contaminated soil were excavated to a depth of 2 feet from the CSP and placed into the containment cell constructed on the Central Property. Following removal of the waste material, two corrugated metal pipes (CMPs) were installed to route storm water around the CSP and prevent storm water contact with residual, un-excavated waste material. A 36-inch CMP was installed along the drainage easement adjoining the Geer Property and an 18-inch CMP was installed along the northeast edge of the CSP adjacent to the Cemetery Area. Several tons of concrete rubble rip-rap were placed on the steeper portions of the outfall slope and keyed into the Leon River bank (LRB). A 16-ounce (oz)

geotextile fabric was installed around the outlet sections of the CMPs followed by placement of rip-rap to mitigate erosion.

Prior to installation of the CMPs, the area was re-graded to a 2 to 6 percent slope, except in the vicinity of the LRB, which dropped to a 1.5:1 slope. Following placement of the CMPs, the waste remaining within the footprint of the grading limits was covered with 1 foot of clay followed by 0.5 foot of topsoil.

North Property Area

A total of 7,644 CY of waste material and contaminated soil were excavated to a depth of 2 feet from designated locations in the North Property area, including the NSP and Evaporation Lagoon (EVL) area, and placed in the containment cell constructed on the Central Property. The waste remaining within the grading limits of the NSP was re-graded to the final contours minus 18 inches prior to being covered with 1-foot of clay followed by 0.5 foot of topsoil.

Following dewatering and stabilization of EVL sludges with rice hulls, the berms of the existing EVL were collapsed. A limited amount of waste material from the SSP, in excess of the design volume, was used to backfill and re-grade the demolished EVL. All of the excavated areas in the North Property were re-graded to a 2 percent slope on top of the NSP, and 3:1 slopes along the edges of the North Property that trended toward the Leon River bank. A cover consisting of 1 foot of clay and 0.5 foot of topsoil was placed over the area excavated area where waste remained below the 2 feet excavation. The cover was hydro-mulched for long-term erosion control.

Modifications were performed to existing storm water pipe located on the west side of the EVL to divert storm water to the Leon River bank. Modifications included the installation of a 24-inch CMP tied into the existing manhole. The concrete culvert outlet pipe of the manhole which conducted flow to the EVL was plugged with concrete in order to reroute the flow to the new 24-inch CMP.

A second concrete culvert to the east of the EVI. was plugged with concrete at the inlet. Additionally, the east culvert was collapsed in-place. The associated east manhole was filled with select fill material and capped with a 4-inch concrete cap. Isolated solid waste (non-hazardous) consisting of office equipment, paper debris, wood, and other material was removed from the Office and Freshwater Processing buildings and disposed of off-site.

Leon River Bank

The LRB stabilization was changed from the original design of localized bank restoration to the stabilization using ACB. The change was to improve stability of the riverbank and prevent future erosion of waste material into the Leon River.

Waste material was excavated from unstable areas of south bank of the Leon River. The slope of the LRB was re-graded to an approximate 2:1 slope along the northern boundary of the site. The entire slope of the LRB, approximately 78,116 square feet, was first covered with non-woven geotextile fabric upon which the ACB were placed. Upon completion of the ACB placement, rip-rap was placed at the leading and trailing edges of the bank and at the toe of the bank to mitigate erosion caused by scour underneath those edges. Additionally, the ACB was backfilled with select fill, then hydro-mulched and covered with a straw matting to assist with maintaining slope stability.

Operable Unit 2 (OU2) and Central Property Areas

A total of 71,191 CY of waste material and contaminated soil were excavated from designated locations in the Operable Unit 2 (OU2) and Central Property areas and placed in the on-site containment cell. The areas of contaminated soil included the SSP, DSP, and the OU2 Property area. Supplemental areas of contamination discovered during the course of the RA, both vertical and horizontal extents greater than the design removal called for, received a cover consisting of 1 foot of clay and 0.5 foot of topsoil. This was documented through an Explanation of Significant Difference (ESD). The areas receiving cover are those with wastes possessing concentrations of COCs above direct contact PRG levels. Excavated areas that were designated clean were backfilled as needed and all areas graded to promote storm water drainage.

Isolated solid waste consisting of office equipment, paper debris, wood, and other material was removed from the Maintenance and Warehouse buildings and disposed of off-site. The approximate volumetric yardage of isolated waste debris was 80 CY. A total of 2,189 gallons of Mulrex™ (resin used by Rockwool in their industrial process) sludge was removed from one of three 6,000-gallon aboveground storage tanks and disposed of off-site at a non-hazardous waste landfill. The remaining two 6,000-gallon tanks were empty.

Containment Cell

The containment cell design was changed from the original multilayer cell to a cell with a Matcon (Modified Asphalt Technology for Waste Containment) cap. The Matcon cap is essentially an asphaltic cap with proprietary chemical added to the asphalt. **Figure 9** shows the details of the containment cell and Matcon cap.

The Matcon cap of the containment cell provides effective waste isolation and can also be used as a parking lot. The Matcon covered cell has lower maintenance and has a lower profile than a conventional cell.

The Matcon containment cell (CC) was constructed on the northwestern portion of the Central Property. The CC was filled with approximately 78,835 CY of excavated waste material. The primary elements of the containment cell include:

1. A bottom trapezoidal footprint that is 490 feet along the northern edge and 371 feet along the southern edge, with parallel north and south edges that are separated by 323 feet. The sides have 2:1 slopes from original grade to the 509 feet above mean sea level (msl) elevation, with 5:1 side slopes from the 509 to 501 msl elevation. The CC is 22 feet deep from the top of the finished grade to the vertical limit of excavation.
2. The berm for the CC was constructed with 2:1 inside slopes, 3:1 outside slopes, and a 6-foot-wide crown around the CC perimeter using native clay material removed during the CC's excavation.
3. A 16-oz geotextile fabric was placed on the floor and side slopes of the entire CC. A 40-mil (0.04 inch)-thick, textured, linear low-density polyethylene (LLDPE) geomembrane placed over the entire geotextile fabric. Upon completion of the LLDPE placement, a 32-

oz geotextile fabric was placed on all side slopes, and a 1-foot thick protective layer of sandy loam was placed over the top of the 16-oz geotextile and LLDPE on the floor of the CC. All geosynthetic materials were tied into a 1-foot wide anchor trench cut into the surface of the berms and sealed in place with flowable concrete fill.

4. The CC was filled with waste material until reaching an elevation parallel 2 feet below the top of the berms. Additional waste was brought in to create a crown at the center of the CC, rising from the berm elevation toward the center at a 2-percent slope. Once the CC had reached its waste capacity, a 1-foot-thick layer of select fill was placed over the waste. Once the select fill material was placed, a 6-inch-thick layer of base course material was placed. The final cap consisted of 4 inches of Matcon (Modified Asphalt Technology for Waste Containment) material.
5. The finished grade of the trapezoidal cover is at a 2-percent slope running towards each of the four sides of the trapezoid. The crown is approximately 8 feet above ground surface at the perimeter.
6. A storm water interceptor ditch was constructed around the perimeter of the CC. Storm water runoff from the Matcon cover is conveyed by the ditch to a detention basin located southeast of the CC and then on to an existing drainage course running underneath FM 93.

4.4 Operations and Maintenance

The O&M plan as defined in the RA Report (**CH2M HILL, 2006**) included:

- Inspections will occur semi-annually for the first 5 years, up to a maximum of 30 years
- Inspection of the soil covers
- Inspection of the Matcon cover
- Inspection of the drainage controls
- Inspection of the ACB along the Leon River bank
- Inspection of the security and control of the site
- Inspection of the groundwater monitor wells
- Document changes in land use that might affect the protection of the remedy
- Sample and measure groundwater levels semi-annually for the first 5 years
- Evaluate water level and water quality analysis results on an annual basis.

EPA was to conduct the O&M for the first year after completion of the remedial action, and TCEQ was to assume O&M activities after the first year. However, the State (TCEQ) has not yet assumed the O&M phase as TCEQ considered damage on the periphery of the Matcon cap as not acceptable. TCEQ is scheduled to begin conducting O&M at the site later this year, except that EPA will continue O&M of the Matcon cap until the damages to the Matcon cap are addressed and TCEQ assumes O&M for the whole site. The City of Belton mows the property 2-3 times per year. EPA conducted baseline groundwater sampling and groundwater elevation measurements on December 18-20, 2006 and January 9-11, 2007 (**EA, 2007**). The groundwater analytical data is included in **Table 3**, the groundwater elevation data is given in **Table 6**, and a review of the data is given in **Section 6.3**. EPA has been making periodic repairs of cracks to the Matcon cap, and in September of 2010 EPA completed repairs of the erosion damage of the southern edge of the Matcon cap. **Figure 10** shows an example of the damage and repairs to the Matcon cap.

The Record of Decision determined that the only environmental or human health risk identified in the Leon River was to adult anglers from antimony in the fish. However, according to EPA research, there is no published data for acceptable concentrations of antimony in fish. Therefore, additional fish sampling as recommended in the O & M Plan was dismissed.

In 2005, the City of Belton adopted Ordinance Number 2005-46, which prohibits drilling into or using the water from the shallow perched aquifer. This ordinance removed the last pathway for interaction between receptors and the shallow perched aquifer. Based upon the removal of this pathway, EPA determined that groundwater monitoring, as stipulated in the O & M Plan was no longer required.

The O&M cost estimate for the site is $23,480/year for the first five years (**CH2MHILL, 2005b**), or $117,400 total for the first five years. Total O&M costs since the completion of the RA has been $98,564, which included the repairs to the Matcon cap, the site inspection, groundwater sampling and analysis, and reporting.

5 Progress Since the Last Five-Year Review

This is the first five-year review.

6 Five-Year Review Process

This five-year review has been conducted in accordance with the EPA's Comprehensive Five-Year Review Guidance (**EPA, 2001**). The five-year review for this site was initiated by the EPA which tasked the U.S. Army Corps of Engineers to perform the technical components of the multidisciplinary review. The review team consisted of environmental engineers Rick Smith and John Hickman, chemist Frank Roepke, and geologist John Lambert. The signature date for this review was originally set for June 2011, six years and two months after the commencement of the remedial action. Interviews were conducted with relevant parties, a site inspection was conducted, and applicable data and documentation covering the period of the review were evaluated. The findings of the review are described in the following sections.

6.1 Community Involvement

A public notice announcing initiation of the five-year review was published in the Belton Journal newspaper on March 31, 2011. Upon signature, the Five-Year Review report will be placed in the information repositories for the site, including Belton City Hall, the TCEQ office in Austin, Texas, and the EPA Region 6 office in Dallas, Texas. A notice will be published in the Belton Journal to summarize the findings of the review and announce the availability of the report at the information repositories. A copy of the initial public notice is provided as **Attachment 5** to this report.

6.2 Document Review

This five-year review included a review of relevant site documents, including decision documents, construction and implementation reports, one inspection report and related monitoring data. Documents that were reviewed are listed in **Attachment 1**.

6.3 Data Review

The ROD specified that semi-annual groundwater monitoring data be collected and analyzed for five years after the completion of the RA. The O&M Plan (**CH2M HILL, 2006**) specified post-RA groundwater monitoring be performed to assess the overall effectiveness of the RA with respect to reducing the concentration of antimony and arsenic present in groundwater.

RAOs for the site included the prevention of leaching and migration of antimony, arsenic and lead from surface/subsurface soils/waste into groundwater and surface water resulting in concentrations exceeding 6 μg/L, 50 μg/L, and 5μg/L, respectively. Baseline samples were taken in December 2006 and January 2007. Because Institutional Controls enacted by the City of Belton removed the final pathway of environmental concern, the EPA determined in 2007 that groundwater sampling was no longer required and removed this requirement. The O & M plan needs to be updated to reflect this change. Most of the wells still remain although their subsurface condition for future use for groundwater monitoring is unknown. Therefore, it is recommended that these wells be plugged and abandoned to remove a potential pathway for further contamination into the shallow aquifer.

The Texas Surface Water Quality Standards (TSWQS) for arsenic and lead that the water quality RAOs are based on have changed since the ROD was issued, and will be adopted after approval by EPA. Any newly promulgated or modified TSWQS for arsenic and lead will be considered in future protectiveness evaluations. Note however, that the selected remedies in place will not be modified unless a modification is needed to protect human health and the environment (i.e., it is determined that the selected remedies would result in exposures outside the acceptable risk range).

The ROD intended that Leon River fish tissue samples be evaluated during the first five-year review to determine the effectiveness of the remedy in reducing the risk of consuming Leon River fish. The actual sampling of fish tissue showed that the non-carcinogenic hazard was below the EPA recommended index of 1.0. In addition, no unacceptable level of antimony in fish tissue has been developed. Therefore, the EPA determined that based upon the evaluation of fish tissue sampling and without promulgated antimony fish tissue standards, additional fish sampling was not required.

6.4 Interviews

Interview forms were provided by email to EPA Remediation Project Manager Shawn Ghose, TCEQ Project Manager Alvie Nichols, and Belton Director of Public Works Les Hallbauer. An interview form was also completed and returned by mail by Steve Jones, the owner of the

fiberglass tank manufacturing facility located in the OU2 area. The completed interview record forms are presented in **Attachment 2**.

Mr. Hallbauer's overall impression of the site is satisfactory. He stated that the City of Belton is conducting routine maintenance of the site such as mowing, cleanup, and new signs, and noted that some fencing at the site needs to be repaired. Mr. Jones impression of the site work is good overall. He stated that there had been some spotty vandalism, and that the abandoned buildings need to be removed to make the site more attractive.

Mr. Nichols provided the following information about the site: 1) fences around portions of the site need to be repaired or replaced; 2) EPA conducted repairs to the Matcon cap in late 2010 In response to TCEQ observations of damage to the cap, but that the asphalt cover over the waste containment cell was determined by EPA to not be in need of repair (i.e., the integrity of the cover over the waste containment cell was not compromised); 3) the RAO for surface water and groundwater quality for arsenic is 50 µg/L, but the MCL for arsenic has changed from 50 µg/L to 10 µg/L, and that the remedial action in association with achieving groundwater RAOs may be difficult to achieve due to the change of the arsenic MCL; 4) groundwater sampling events have not been conducted on a consistent basis and are inconclusive at this time; 5) analytical data from the 2006 and 2007 sampling events for antimony are unusable due to method blank contamination; 6) TCEQ received notice of the waste containment cell repairs conducted in late 2010 but did not receive notice from the EPA regarding subsequent changes to the schedule; 7) TCEQ and EPA have come to an agreement concerning future O&M at the site.

Mr. Ghose provided the following information about the site: 1) two projects have been completed at the site since 2005 including , a) a baseline O&M Report including groundwater monitoring, and b) a removal action in September 2010 to augment drainage on the south side of the Matcon cap; 2) groundwater analyses in the Baseline Report for arsenic and antimony are in error; 3) the only complaints, violations or other incidents that required a response by EPA concerned some displaced signs ; 4) monitoring of the remaining groundwater wells is redundant as no remedy was necessary for the shallow groundwater ; and 5) institutional controls are implemented by City of Belton Ordinance # 2005-46 which prohibits drilling into or use of the

shallow groundwater, and thus, the exposure pathway to the shallow groundwater has been eliminated.

6.5 Site Inspection

An inspection was conducted at the site on March 17-18, 2011. The completed site inspection checklist is provided in **Attachment 3**. **Attachment 4** includes the photographs taken during the site inspection. The inspection team consisted of Rick Smith and John Hickman of the Corps of Engineers. The inspection team was accompanied on the inspection on March 18 by Shawn Ghose and Bob Sullivan of EPA, Alvie Nichols and Marilyn Long of TCEQ, and Les Hallbauer of the City of Belton. Site inspection tasks included a visual inspection of site features including the containment cell cap, monitoring wells, waste material and contaminated soil cover, the ACB on the LRB, site vegetation, fences and gates, and signage.

The southern boundary of the Central Property along FM 93 has a barbed wire fence which is in good condition, and a locked gate. The southern boundary of the North Property along Taylor's Valley Road has a chain link fence and a locked gate. The fencing is partially missing and damaged around the paved asphalt parking area (**Photos 44 and 46**). There are no fencing requirements in the ROD.

Warning signs have been installed around the perimeter of the site. Locations noted with missing signs were along the northern edge of the paved asphalt parking area on the North Property, along the eastern edge of the North Property, and only one sign was observed along the site boundary along the Leon River. The signs at the boundary of the cemetery and the CSP, which partially overlaps the cemetery (**Photo 56**), are still intact. However, they are sufficiently far apart that they could be missed. Because there could be additional burials in this cemetery, additional signs are recommended to clearly delineate the area in which digging is prohibited. There is a concrete plant at the western edge of the CSP, and operations have encroached on the CSP in the past (**Photo 57**). Additional signs have been added in this area and this is not currently a problem, however, this area needs to be monitored to ensure protection of the CSP cover. Consideration should be given to installing a fence between the CSP and the concrete plant if the plant operations encroach on the CSP in the future.

The cap over the CSP and NSP had good grass cover, except that there are some small cracks in the top of the NSP (**Photo 51**). The vegetation needs to be re-established in the western edge of the CSP where the concrete plant operations encroached on the cover. There was a good grass cover over the capped EVL. One area of active erosion was identified along the western edge of the EVL (**Photo 48**), and the erosion continued all the way north to the top bank edge of the ACB. This erosion needs to be addressed to avoid possible exposure of the waste placed in the EVL, and to avoid possible destabilization of the ACB stabilized LRB. Portions of the capped in place wastes and contaminated soils in the SSP area of the Central Property had areas of sparse vegetation (**Photos 72 and 73**). The vegetation needs to be re-established in these areas. Inspection of the ACB stabilized Leon River bank showed several of the ACBs had shifted at the toe of the bank between the EVL and the NSP (**Photos 39-42**). The ACB needs to be monitored to avoid loss of the blocks and erosion of the bank. There are small trees growing out of the ACB which need to be removed. There is a CMP pipe that discharges in the stabilized LRB between the NPS and the EVL that is partially clogged (**Photos 31 and 32**), and needs to be cleaned out. The concrete outfall for this pipe is cracked (**Photos 33 and 34**). These cracks are large enough to possibly allow water to flow under the outfall and should be repaired to avoid possible erosion and undermining of the outfall. There are two CMPs under the CSP. The inlet to one of these pipes is partially clogged (**Photo 55**) and should be cleaned out. On the North Property, wheel ruts were observed in the area between the EVL and the parking lot (**Photo 47**), but this is not an area with covered waste. These ruts were probably caused by city workers performing maintenance at the site.

The Matcon cap had multiple small cracks in the asphalt, both sealed and unsealed, but the cracking did not appear excessive. Most cracking was around the perimeter of the cap. Unsealed cracks need to be repaired as specified in the O&M Plan (**CH2M HILL, 2006**). The repairs made to the erosion along southern edge of the cap were noted (**Photos 62-65**), and at one location it appears that there may be new erosion forming in the rip-rap repaired area (**Photo 63**). **Figure 10** shows an example of the previous erosion damage and the repairs along the southern edge of the cap. When the CC was constructed, a green fiberous erosion control matting was placed in the drainage ditch around the perimeter of the cell. At places, the matting has separated from the ground and is now suspended several inches above the ditch (**Photo 69**). The matting

should be reinstalled as intended by the original. At several places around the edge of the asphalt Matcon cap it appears that there is minor erosion of the cap subbase occurring beneath the erosion control matting (**Photos 66-68**). The cap extends past the edge of the containment cell by seven feet (**Figure 9** shows the design of the CC), and there is no near term risk of the waste being exposed, but the erosion of the subbase needs to be addressed prior to undermining and damage to the edge of the Matcon cap to avoid expensive repairs.

The 23 monitoring wells designated for use in the groundwater monitoring plan at the site were found during the inspection. Two additional wells, MW-18 near the northern edge of the Central Property, and MW-25-90 near the eastern edge of the landfill in the northeast section of the Central Property (**Photos 9 and 15**), were also found on the site. The O&M Plan (**CH2M HILL, 2006**) states that MW-25-90 was abandoned in 1990, and that MW-18 could not be located during the RA. The other wells not designated for groundwater monitoring were plugged and abandoned during the RA. These two wells are not part of the site groundwater monitoring plan and should be considered for plugging and abandonment. Wells MW-7, MW-14, MW-15, MW-17, and MW-25-90 were either missing identification, or the identification tag had fallen off and was laying on the well pad or ground nearby. The identification on these wells should be replaced to avoid possible confusion and errors during groundwater sampling and measurements. There was erosion under the well pad at well MW-28-90 (**Photo 18**). The soil should be built back up around this well pad. The lock was missing on well MW-33-90 (**Photo 21**), and should be replaced. Wells MW-17 and MW-20 are overgrown (**Photos 8 and 11**), and the vegetation needs to cleared away to allow continued access.

7 Technical Assessment

The five-year review must determine whether the remedy at a site is protective of human health and the environment. The EPA guidance describes three questions used to provide a framework for organizing and evaluating data and information, and to ensure all relevant issues are considered when determining the protectiveness of a remedy.

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

The documents that detail the remedial decisions for the site are the August 2003 Interim ROD, the September 2004 ROD, and the August 2005 ESD. The remedy at the site is complete, and the

site is currently undergoing O&M, including groundwater monitoring. Based on the data review, the site inspection, and interviews, it appears that the remedy is functioning as intended by the decision documents. Groundwater monitoring results, O&M operations, and O&M costs are discussed in **Sections 6.3 and 4.4**. Opportunities for optimization, early indicators of potential remedy problems, and implementation of institutional controls are discussed below.

Opportunities for Optimization. No opportunities for optimization were identified during the review.

Early Indicators of Potential Remedy Problems. The site contaminants have been capped and are protected from exposure as designed and potential groundwater exposure has been controlled by ICs,

Implementation of Institutional Controls. The remedy specified in the ROD includes the placement of institutional controls on the site property, to: 1) prevent future use of the shallow groundwater; 2) prevent any disturbance of the clay cap that would negatively affect the function of the cap, excepting temporary utility construction or repair; 3) provide for the continued effectiveness of the interceptor trench and surface flow controls or their substitutes, 4) to protect the integrity of the containment cell and its cap and 5) to provide for the protection of, and access to, all monitor wells. The ICs specify deed restrictions be placed on the affected property, as appropriate or as allowed by law to protect industrial workers from contacting the site waste and affected soil that does not meet site PRGs and prohibit accessing the shallow groundwater. In addition the property is zoned for heavy industrial use and industrial zoning will be maintained by the City.

Institutional controls have been placed on the site by way of deed restrictions on the properties placed by TCEQ, and by a city ordinance passed by the City of Belton. Copies of the deed restrictions implemented on the properties at the site and the City of Belton Ordinance 2005-46 were obtained and evaluated in the review of the institutional controls at the site. The deed restrictions were filed for record with the County Clerk of Bell County on January 22, 2009. City

Ordinance 2005-46 was passed by the City of Belton City Council on September 27, 2005, signed by the Mayor, and attested by the City Clerk.

TCEQ has filed four Notices of Environmental Conditions (ECOP) in the deed records of the four properties at the site with capped wastes and contaminated soils, and monitoring wells. The ECOPs state that: 1) the property meets standards for commercial/industrial use, and that if any person desires in the future to use the property for residential purposes, the TCEQ must be notified at least 60 days in advance of such use and additional response actions may be necessary before the property may be used for residential purposes, 2) the clay, soil, and vegetative cover on the property is subject to TCEQ requirements for properties containing concentrations of chemicals of concern in soil and is subject to TCEQ rules to prevent exposure to soils that contain a chemical of concern in excess of the protective concentration level, 3) the waste control unit is subject to TCEQ requirements for properties containing concentrations of chemicals of concern in groundwater underlying a waste control unit and is subject to TCEQ rules to prevent exposure to underlying groundwater that contains a chemical of concern in excess of the protective concentration level, and 4) the asphaltic surface covering the containment cell may be used provided, however, that no holes are made in the cover and that the integrity of the waste control unit is protected as required by the maintenance and monitoring program. The ECOPs require that the property owner:

- Prevent any disturbance of the cap that would negatively affect the function of the cap;
- Prevent any disturbance of the waste control unit that would negatively affect the function of the unit, except that the asphaltic cover may be used, provided, however, that no holes are made in the cover;
- Protect the integrity of the cap and waste control unit;
- Prevent future use of the shallow groundwater; and
- Provide for the protection of and access to all monitor wells.

The City of Belton passed an ordinance that:

- States that the City of Belton, Texas adopts the institutional control measures identified in the Rockwool Superfund Site ROD and ESD;

- Prohibits any action that would disturb any of the capped areas at the site, the integrity of the caps, the integrity of the containment cell, and causes exposure or access to contaminated soil at the site;
- Prohibits any action including that could cause exposure or access to shallow ground water at the site;
- Prohibits the future use, exposure and access to the shallow ground water at the site;
- Prohibits any action that would disturb or damage the integrity of the ground water monitoring wells located at the site;
- Prohibits access to and use of the ground water monitoring network, with the exception that any access to or use of the ground water monitoring wells at the site shall be consistent with the Rockwool Superfund Site ROD and ESD, and shall include individuals authorized by the ROD and ESD;
- States that the City of Belton, Texas, is obligated to preserve the integrity of the cap and the containment cell, and that nothing contained in this ordinance prohibits the construction of permanent buildings, foundations and piers to support them, and support and accessory structures, parking lots, underground utilities, and other related facilities, so long as such construction does not cause components of the remedy selected in the Rockwool Superfund Site ROD and ESD to fail, and the EPA is afforded the opportunity to review and concur that such construction is protective of human health and the environment.

The city ordinance states that the city is responsible for implementation, inspection, reporting, and enforcement of the institutional controls included in the ordinance. The deed restrictions state that TCEQ will inspect the properties to verify that activities are consistent with commercial/industrial land use. The City of Belton and TCEQ have inspected the site numerous times since the completion of the RA; however, no inspections have been conducted and documented to verify compliance with the institutional control measures and standards. The site should be inspected by the City of Belton and TCEQ as specified in the ICs to verify compliance with the institutional control measures and standards, and the inspections documented. Although neither the ECOPs nor the city ordinance specifically mention providing for the continued effectiveness of the surface flow controls or their substitutes, and the city ordinance does state

that all the ICs identified in the ROD and ESD are adopted. The properties at the site are zoned for industrial use, and all the IC requirements of the ROD and ESD are in place, however, the site inspection requirements of the ICs are not complete.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives (RAOs) Used at the Time of the Remedy Selection Still Valid?

The purpose of this question is to evaluate the effects of any significant changes in standards or assumptions used at the time of remedy selection. Changes in promulgated standards or "to be considered" (TBC) and assumptions used in the original definition of the remedial action may indicate that an adjustment in the remedy is necessary to ensure the protectiveness of the remedy.

Changes in ARARs. Applicable or Relevant and Appropriate Requirements (ARARs) for this site were identified in the Interim ROD dated August 2003 and the Final ROD dated September 2004. The five-year review for this site included identification of and evaluation of changes in the ROD-specified ARARs to determine whether such changes may affect the protectiveness of the selected remedy. A comprehensive list of ARARs identified in the ROD is provided below.

The ARARs identified by the ROD are divided into chemical-specific, action-specific, and location-specific categories. Some of these ARARs apply to activities that are not currently taking place at the site or conditions that do not currently exist. Therefore, as a practical matter, they are no longer applicable to site remediation. However, should additional construction activities occur, these ARARs may be applicable.

Chemical-Specific ARARs:

Chemical specific ARARs are usually health or risk based numerical values or methodologies that, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the environment. The chemical-specific ARARs associated with the selected remedy are:

- **Texas Surface Water Quality Standards (TSWQSs) (30 TAC 307)** - establishes limits for constituents for the protection of surface water quality in Texas.

- **Federal Water Quality Criteria (FWQC) (40 CFR Part 131)** - applies to water classified as a fisheries resource.
- **Texas Risk Reduction Standards (RRS) (30 TAC 335 Subchapter S)** - establishes the basis for development of the soil PRGs. The PRGs evaluate the extent of soil remediation necessary, and establish the residual contaminant levels allowable after treatment.

Action-Specific ARARs:

Action-specific ARARs are typically technology or activity-based requirements applicable to actions involving special categories of wastes. Action-specific requirements are usually triggered by certain remedial activities that may be a component of the overall cleanup alternative. The following action-specific requirements were identified in the ROD as applicable during remedial actions:

- **Standards for Waste Piles and Landfills (40 CFR Part 264 Subparts L and N)** - sets design and operating requirements for the storage or treatment of wastes in piles. If the waste piles are closed with wastes left in place, Subpart N requirements must be met.
- **Texas Industrial Solid Waste and Municipal Solid Waste Regulations (30 TAC 335)** - set forth guidelines for generators to determine if a solid waste is a hazardous waste and require adherence to storage, treatment, and disposal requirements.

Location-Specific ARARs:

Location-specific ARARs are restrictions placed on remedial activities solely on the basis of the location of the remedial activity. Some examples of locations that might prompt a location-specific ARAR include wetlands, sensitive ecosystems or habitats, floodplains, areas of historical significance. Location-specific requirements **were not specifically** identified in the ROD as applicable during remedial actions.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics.

The soil-to-ground-water protection values (GWP PRGs) for arsenic, lead, and antimony were based on achieving the water quality criteria in place at the time the ROD was developed, **and included the** TSWQS for the protection of both human health and ecological receptors (50 µg/L for arsenic, 5 µg/L for lead), and EPA drinking water MCL for antimony (6 µg/L). The ROD

specified RAOs to prevent leaching and migration of arsenic, lead, and antimony from surface/subsurface soils/waste into groundwater and surface water resulting in concentrations exceeding 50 µg/L, 5 µg/L and 6 µg/L, respectively, to achieve the GWP PRGs. The TSWQS for the protection of both human health and ecological receptors was updated on July 22, 2010, as codified by rule in 30 TAC 307, with the criteria for human health protection changing to 10 µg/L for arsenic and 1.15 µg/L for lead, and adding antimony at 6 µg/L (the same as the MCL, which did not result in a change in the value used by the ROD). The 2010 Standards revisions and supporting documentation were submitted to EPA for review and approval on August 4, 2010. EPA provides notice to TCEQ whenever approval or other actions are taken on portions of the revised standards. The EPA must approve the 2010 Standards in order for them to be used for federal permitting programs and other Clean Water Act purposes. During EPA's review of the 2010 Standards, both the 1997 and 2000 Standards are to be continued to be used in federal permitting programs such as the TPDES program. For non-federal programs, the 2010 standards are in effect unless specifically disapproved by EPA. Therefore, once EPA has approved the proposed changes in the TSWQS, EPA will consider the newly promulgated standards in future protectiveness evaluations. Note however, that the selected remedies in place will not be modified unless a modification is needed to protect human health and the environment (i.e., it is determined that the selected remedies would result in exposures outside the acceptable risk range).

The EPA Region 6 Medium-Specific Screening Levels (MSSLs) were used as screening values when determining the contaminants of potential concern (COPCs). The maximum concentrations for soils were compared to MSSLs for outdoor industrial workers, and Tap Water MSSLs were used for surface water; however the MSSLs were from 2001. The EPA MSSLs have been updated through the years and are currently referenced as the EPA Regional Screening Levels (RSLs) and were last updated in November 2010. All of the soil screening levels and five of the Tap Water screening levels (barium, copper, iron, manganese, and vanadium) have changed since 2001 for the COPCs. Additionally, chromium (total) no longer has an industrial soils screening level. The updated RSLs were compared to the maximum concentrations of the COPCs from the RI and there were no additional exceedances or changes in COPCs.

The EPA Adult Lead Model (ALM) was used to determine the lead PRG. The EPA ALM was updated in June 2009 (OSWER 9200.2-82) with the geometric standard deviation (GSD) and background blood lead concentration (PbB) having updated values for the model. The RI and HHRA documents do not indicate what values were used for these two variables to calculate the lead PRG, but the 1996 default values for the geometric mean (GM) of the PbB ranged from 1.7-2.2 µg/L and the GSD ranged from 1.8-2.1. The updated values for 2009 are 1.0 µg/L for the GM and 1.8 µg/L for the GSD. Using the 2009 values in the ALM would lead to an increase in the PRG value for lead; therefore, using the 1996 version of default values for the ALM results in a more conservative PRG than the updated 2009 values and the remedy from the ROD is more protective for this compound.

There have been no other changes in exposure pathways, toxicity characteristics, or other contaminant characteristics for the RWI site. There have been no other changes to the standardized risk assessment methodology that would affect the protectiveness of the remedy.

7.3 Question C: Has Any Other Information Come to Light That Could Call into Question the Protectiveness of the Remedy?

Examples of other information that might call into question the protectiveness of the remedy include potential future land use changes in the vicinity of the site or other expected changes in site conditions or exposure pathways. No additional Information has come to light that could call into question the protectiveness of the remedy.

8 Issues

Nine issues have been identified for this site which affects the protectiveness of the site, as described below.

No.	Issues	Affects Protectiveness (Y/N)	
		Current	Future
1.	The monitoring wells are no longer being used and several of them need repairs.	N	Y
2.	There are missing warning signs at the paved asphalt parking area and at the eastern and northern boundaries of the North Property.	N	N

No.	Issues	Affects Protectiveness (Y/N)	
		Current	Future
3.	There are trees growing out of the Articulated Concrete Blocks (ACB) in the Leon River bank (LRB).	N	N
4.	The ACB has shifted at the toe of the LRB between the North Shot Pile and the capped Evaporation Lagoon (EVL).	N	N
5.	Drainage corrugated metal pipes (CMPs) are partially clogged at the Cemetery Shot Pile (CSP), and in the stabilized LRB between the North Shot Pile and capped EVL.	N	Y
6.	The concrete outfall to the CMP in the stabilized LRB is cracked. The cracks are sufficiently large to possibly allow water to erode and undermine the outfall.	N	N
7.	There is sparse vegetation along the western edge of the CSP and in areas of the capped in place waste materials and contaminated soils in the Central Property area.	N	Y
8.	There is active erosion near the western edge of the capped EVL. This erosion may be occurring over capped waste, and could also threaten the stability the ACB in the LRB.	N	Y
9.	Site inspections are not being conducted in a timely manner.	N	Y

9 Recommendations and Follow-Up Actions

As described in the previous section, nine issues were identified during the five-year review which affect the protectiveness of the site. To address these issues, the following recommendations and follow-up actions have been defined. Two additional significant items not affecting the protectiveness of the site were identified and need to be addressed. Several other less critical items were identified during the site inspection should also be addressed and are discussed in **Section 6.5**.

No.	Recommendations/Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
1.	All unused monitoring wells should be plugged and abandoned.	TCEQ	EPA	N	Y
2.	Install warning signs in the areas where they are missing.	TCEQ	EPA	N	N

No.	Recommendations/Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
3.	Remove the trees growing out of the ACB as specified in the O&M Plan.	EPA/TCEQ	EPA	N	N
4.	Monitor the ACB to avoid loss of blocks and erosion of the bank.	EPA/TCEQ	EPA	N	N
5.	Clear out all the CMPs at the site.	EPA/TCEQ	EPA	N	N
6.	Patch the cracks in the outfall for the CMP in the stabilized LRB.	EPA/TCEQ	EPA	N	N
7.	In areas with capped waste and with sparse vegetation the vegetation needs to be re-established to provide erosion protection.	TCEQ	EPA	N	Y
8.	The erosion near the edge of the capped EVL should be repaired and addressed in a manner to reduce or prevent future erosion.	EPA	EPA	N	Y
9.	Site inspections should be conducted as specified in the Operations and Maintenance Plan and as specified in the institutional controls documents.	EPA, TCEQ and City of Belton	EPA	N	Y

10 Protectiveness Statement

The remedy for the Rockwool site is protective of human health and the environment because the waste material and contaminated soils have been excavated, consolidated and capped, or capped in place. Because the completed remedial actions and monitoring program for the Rockwool site are considered protective for the short term, the remedy for the site is protective of human health and the environment and will continue to be protective if the action items identified in this report are addressed.

11 Next Review

The next five-year review, the second for this site, should be completed by September 2017, five years after the signature date of this review.

Figures and Tables

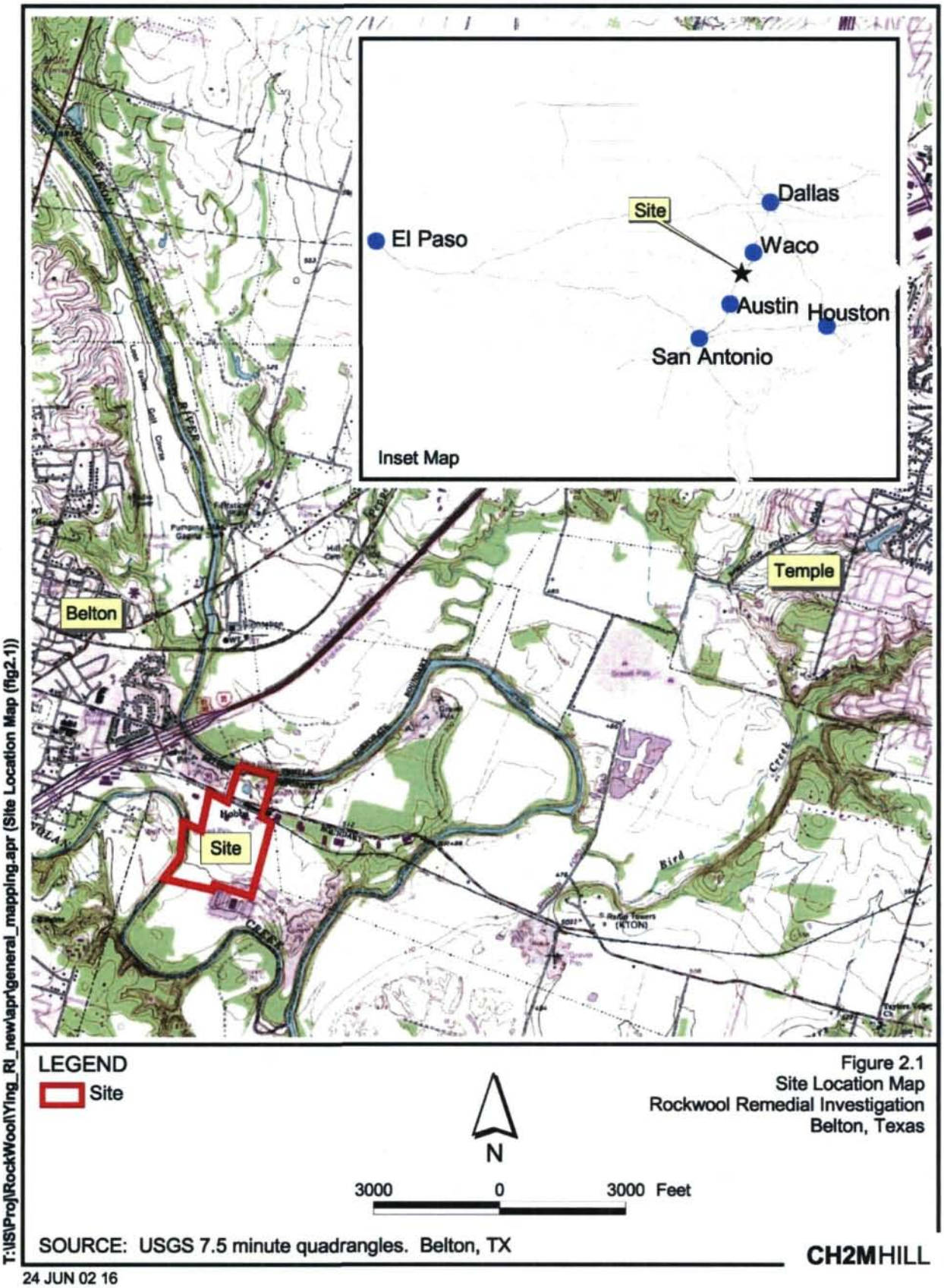


Figure 1. Site Location Map

Figure 2. Aerial View of the Rockwool Site

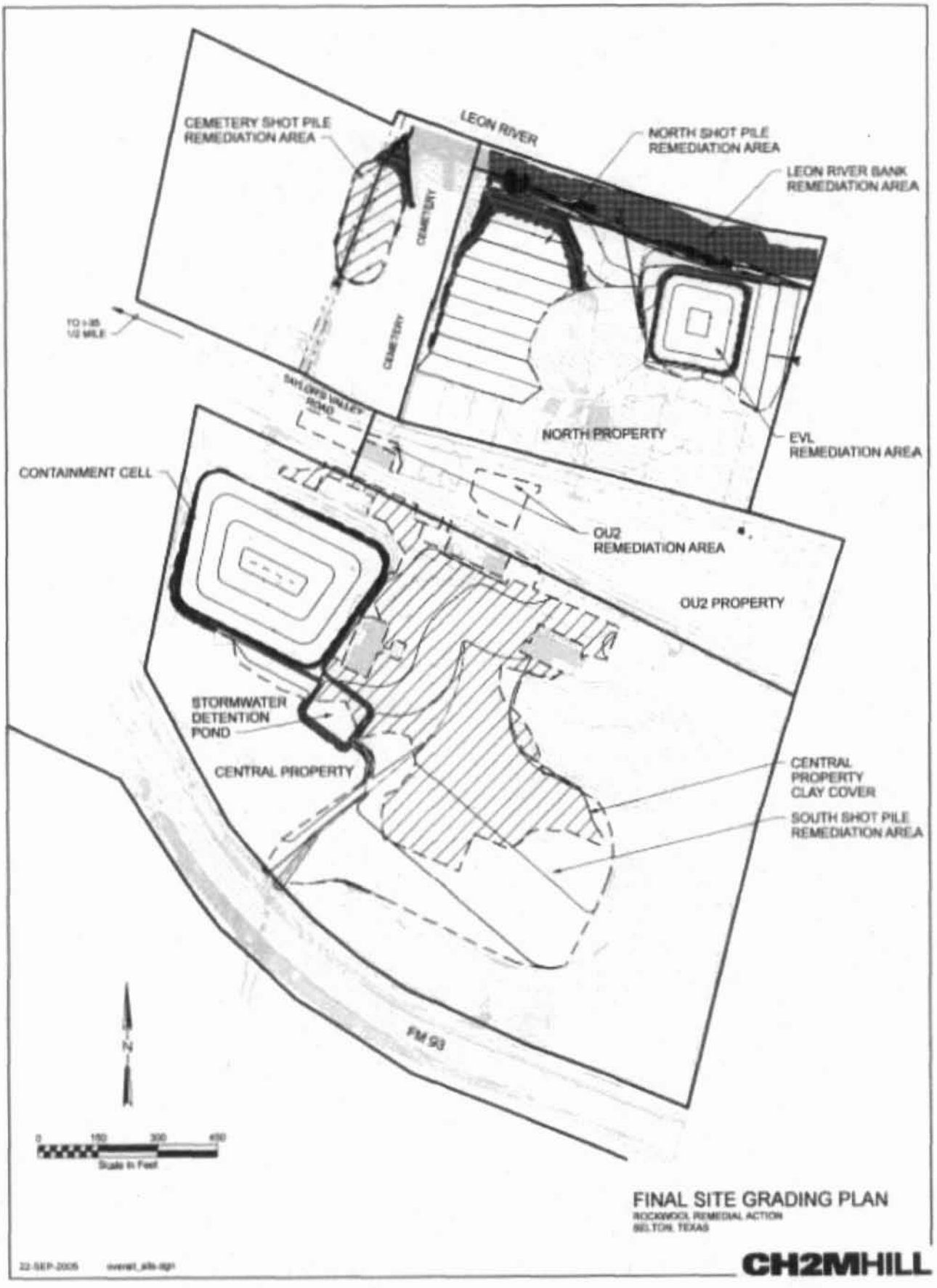


Figure 3. Plan View of the Rockwool Site

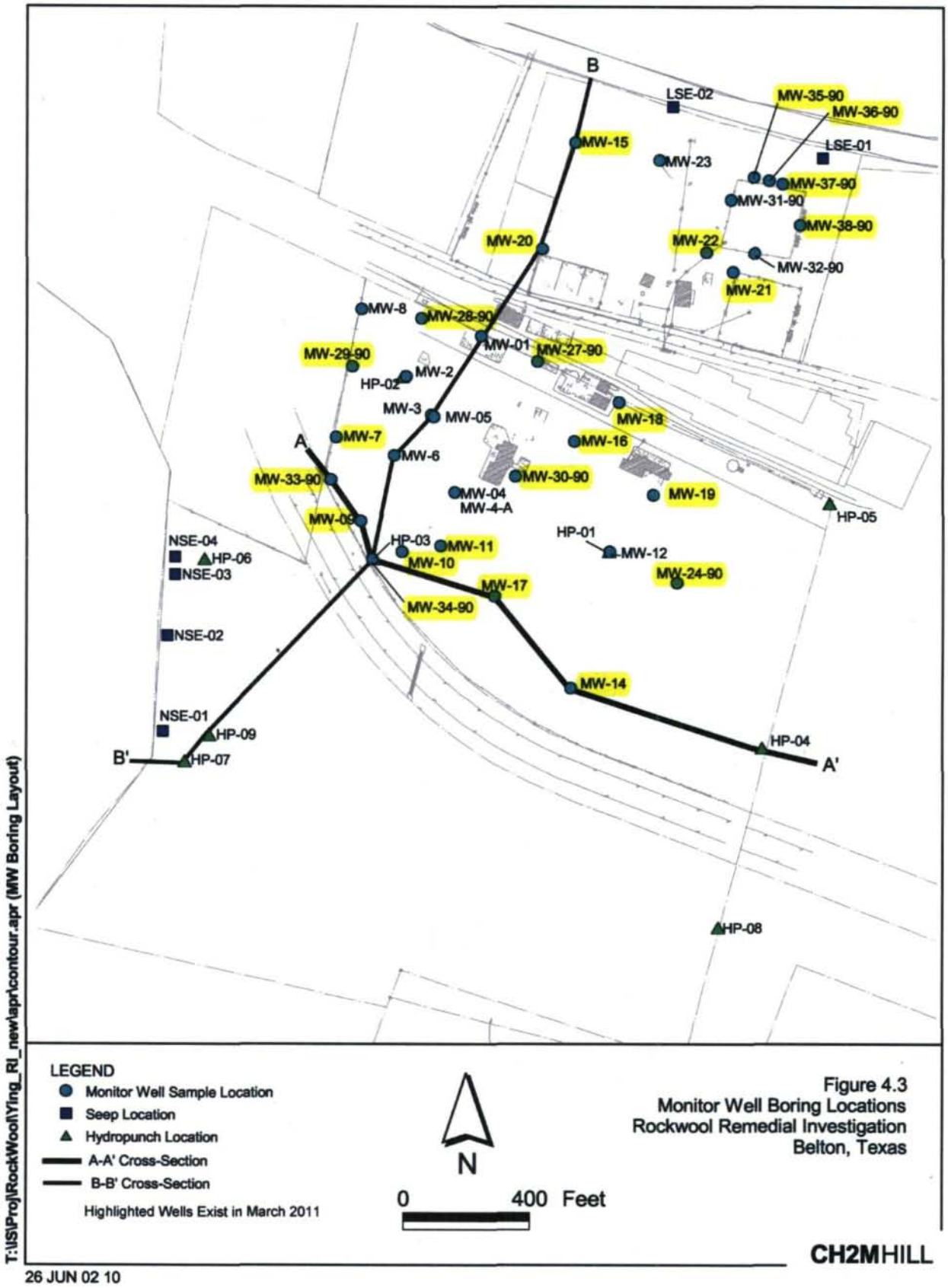
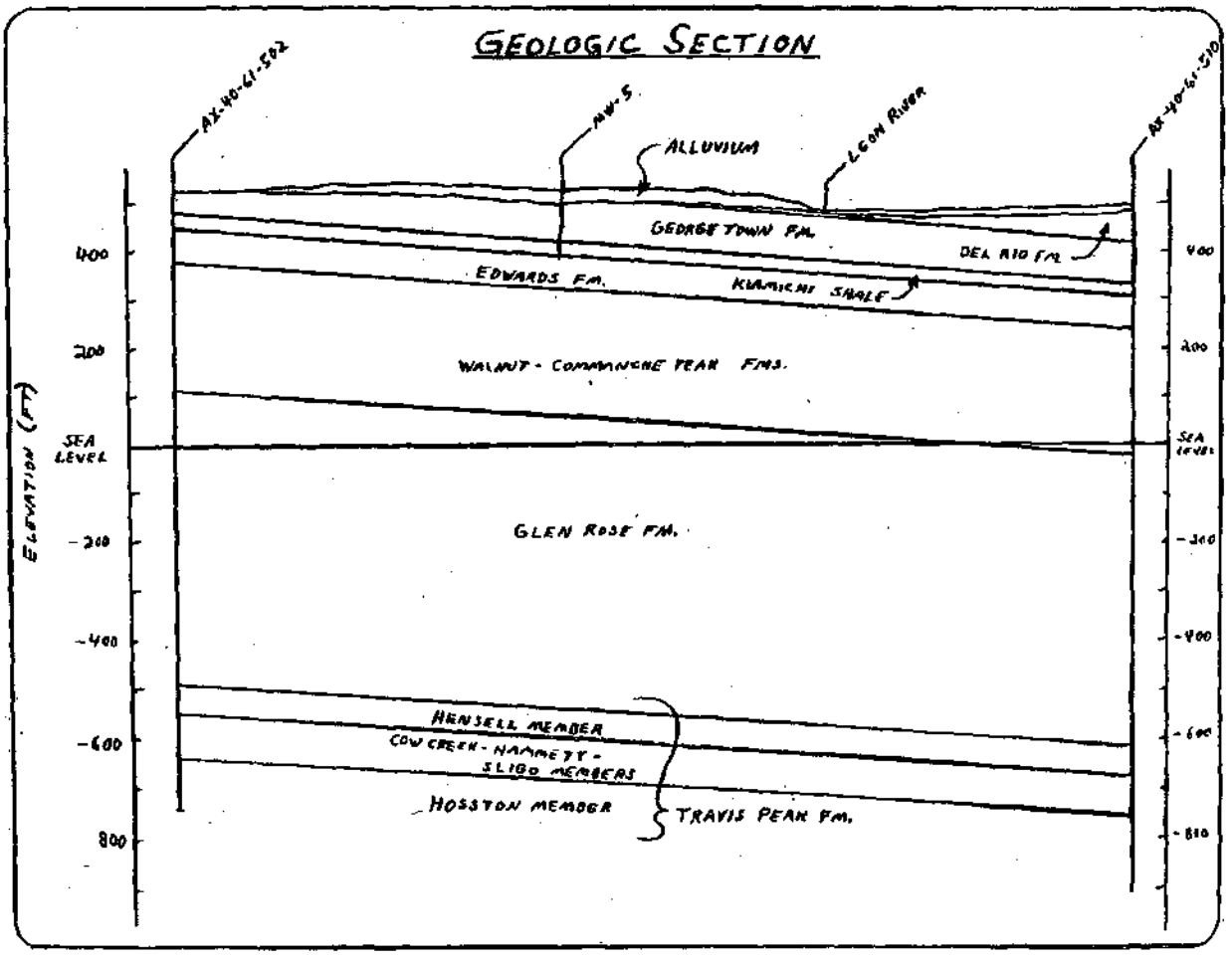


Figure 4. Monitoring Well Locations



(EPA, 2004)

Figure 5. Geologic Profile of the Rockwool Site

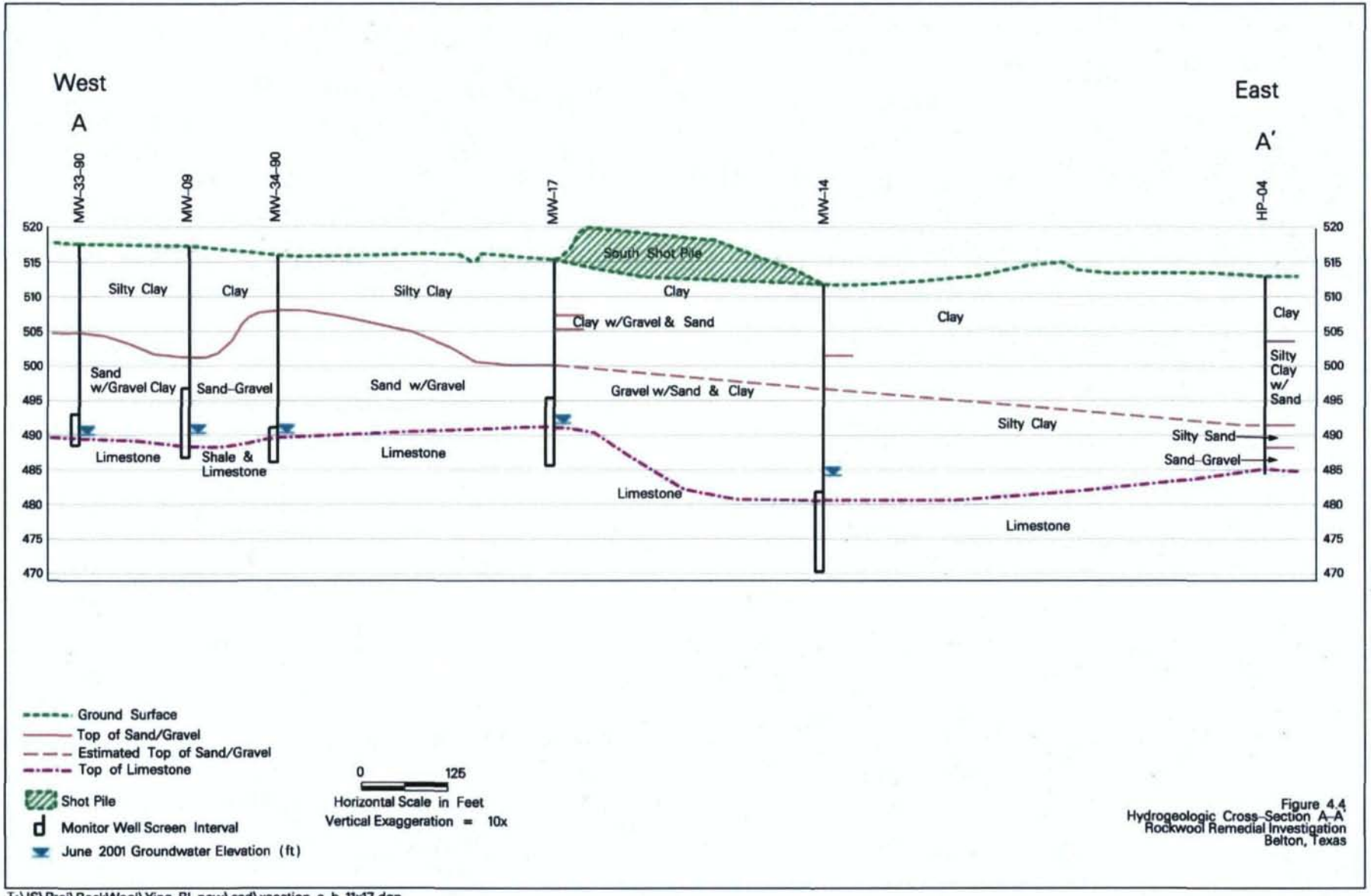


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Figure 6. Hydrogeologic Cross-Section A-A'

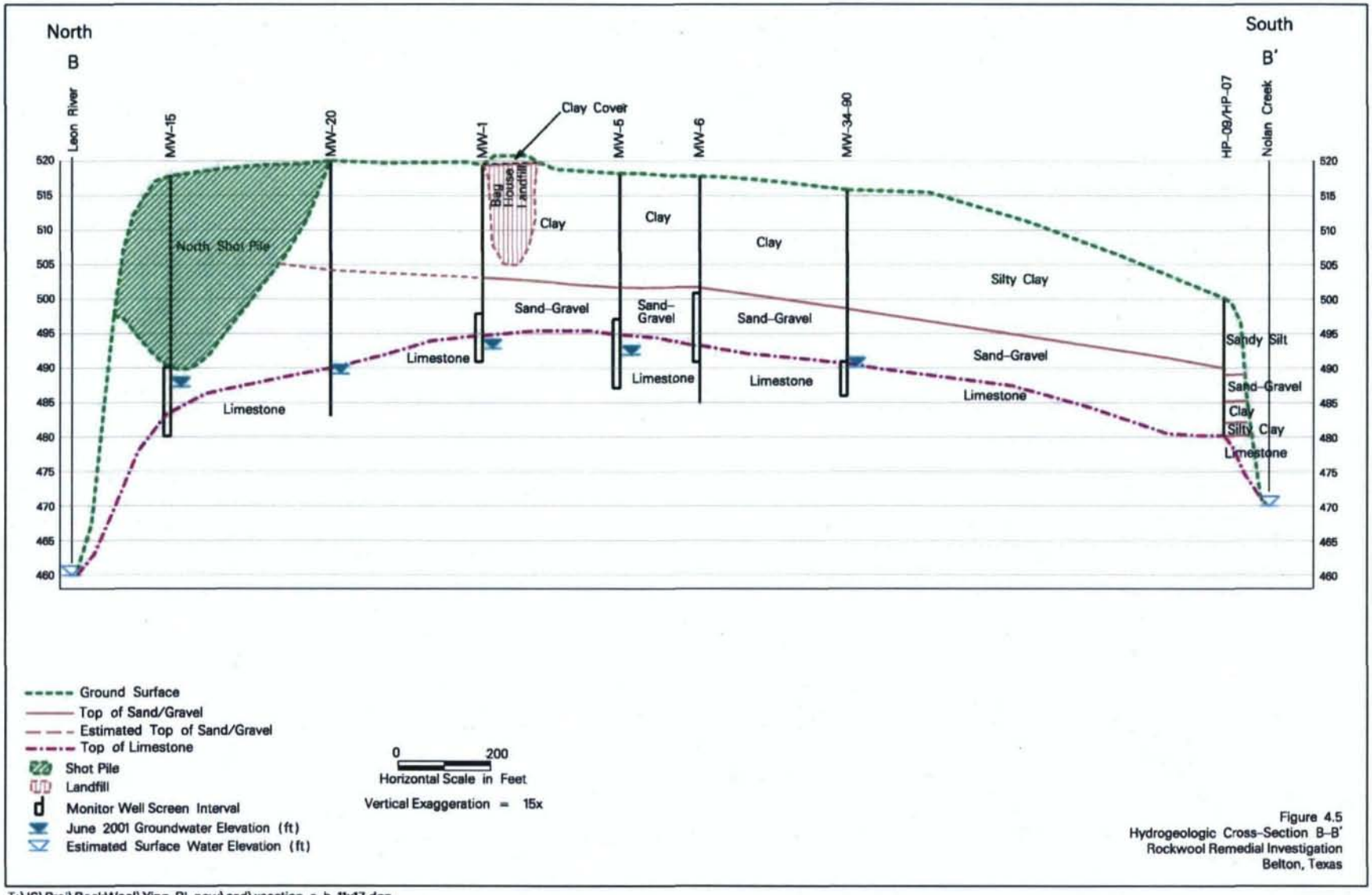
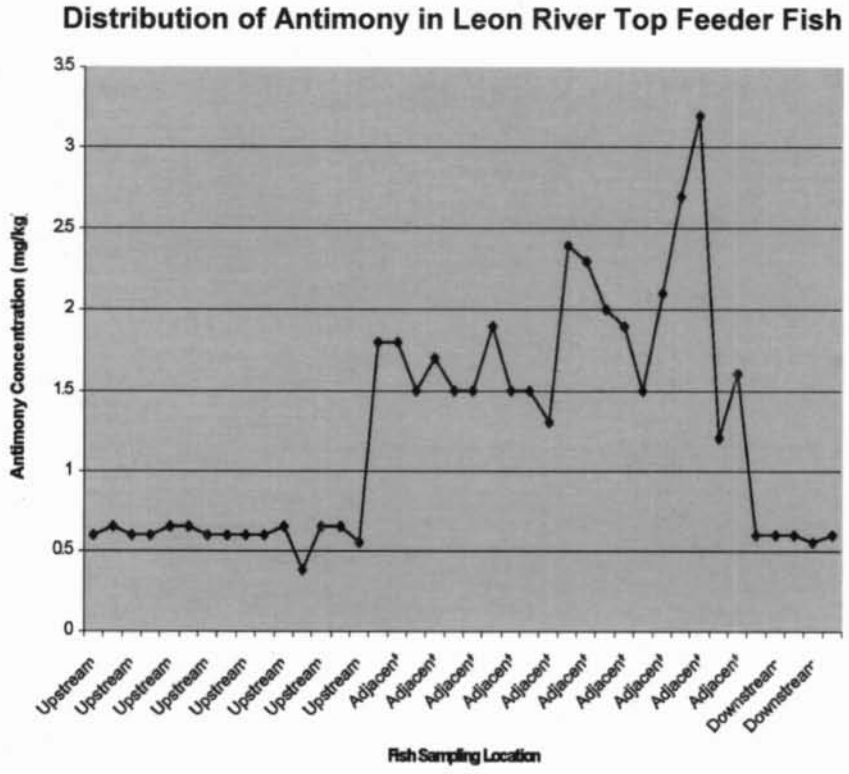


Figure 7. Hydrogeologic Cross-Section B-B'



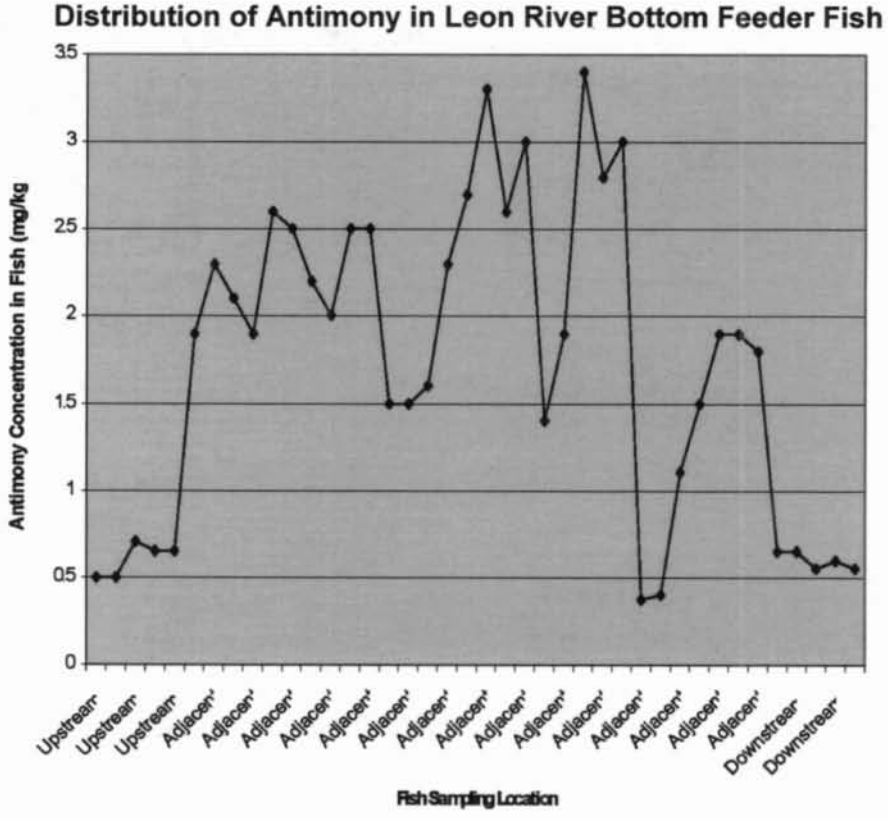


Figure 8. Antimony in Leon River Fish Tissue Based on July 2002 Sampling

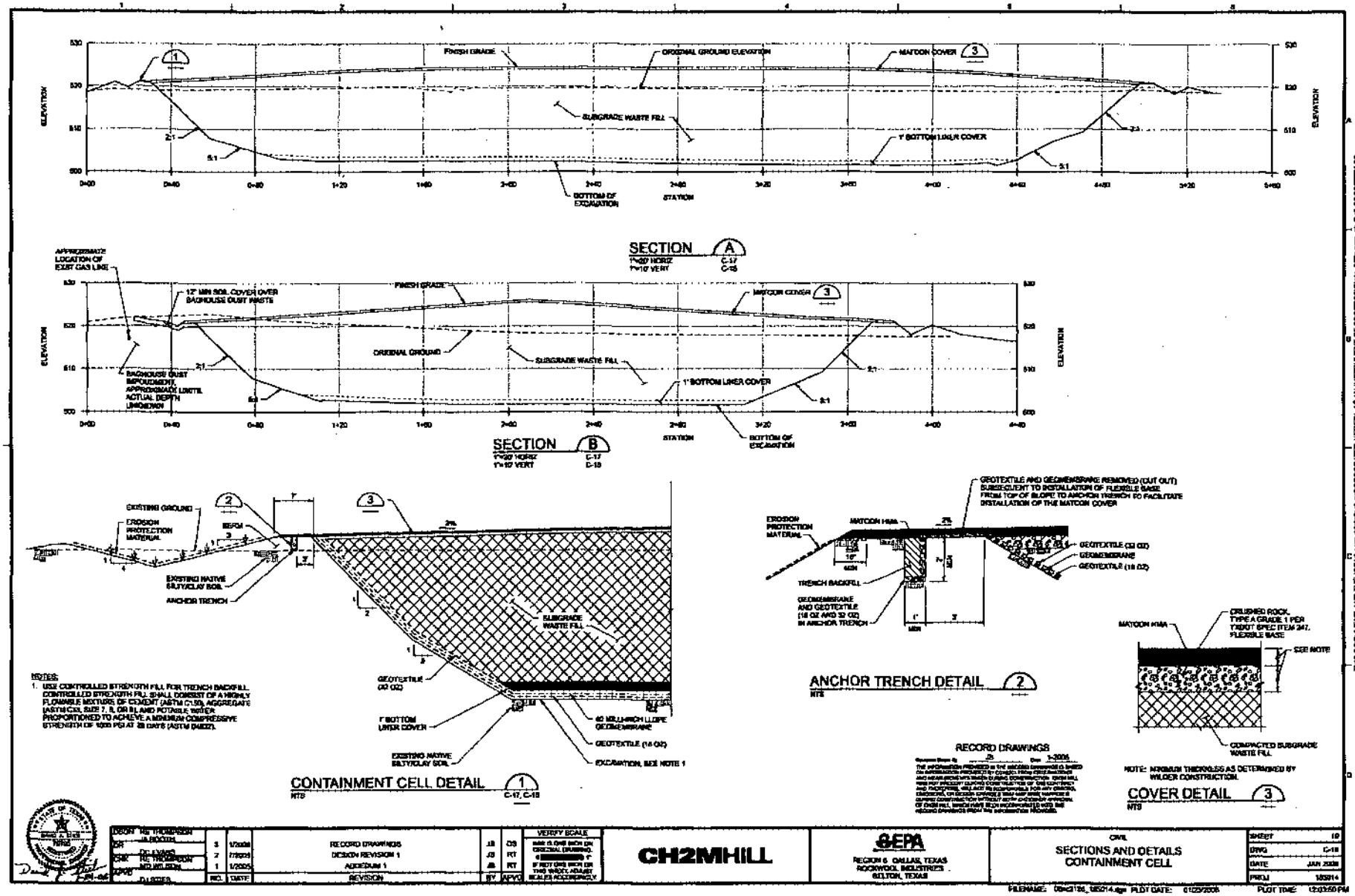


Figure 9. Containment Cell and Matcon Cap Details

Undated photograph of erosion damage to the Matcon cap.

Repaired erosion damage to the Matcon cap, March 17, 2011 photograph.

Figure 10. Erosion Damage and Repairs to Matcon Cap

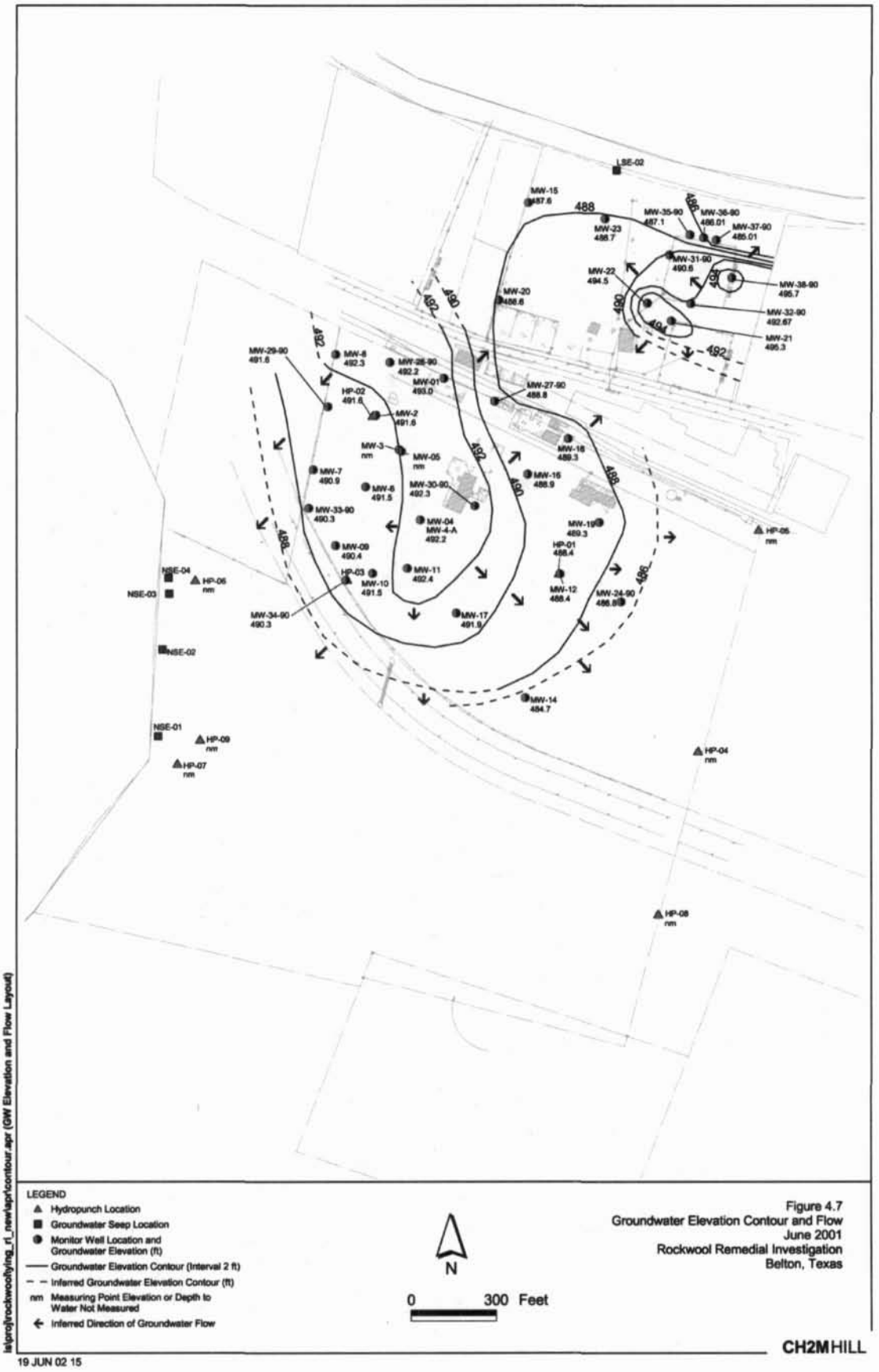


Figure 11. Groundwater Elevations and Flow Directions June 2001

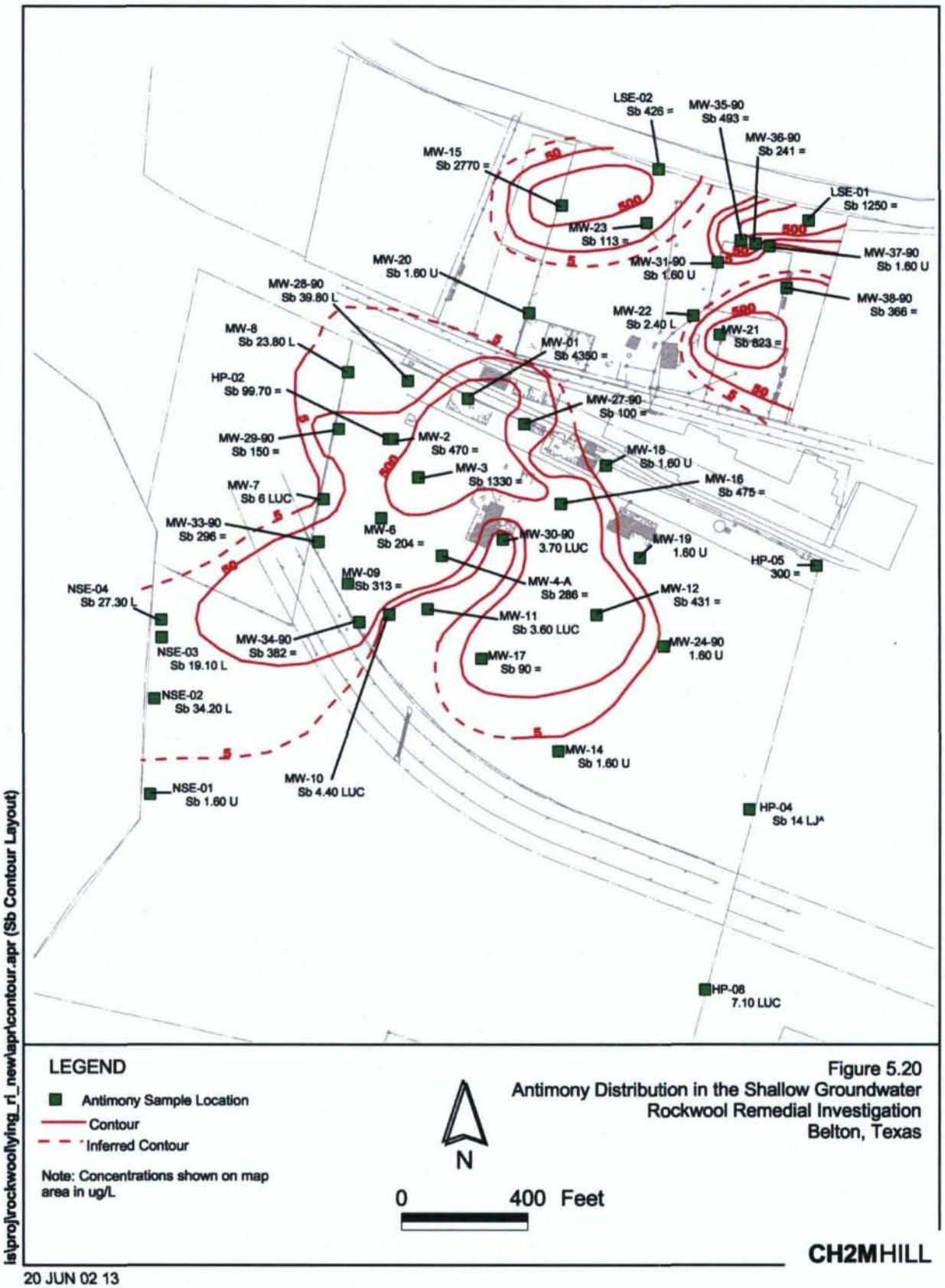


Figure 12. Antimony Distribution in the Shallow Groundwater Based on June 2001 Sampling

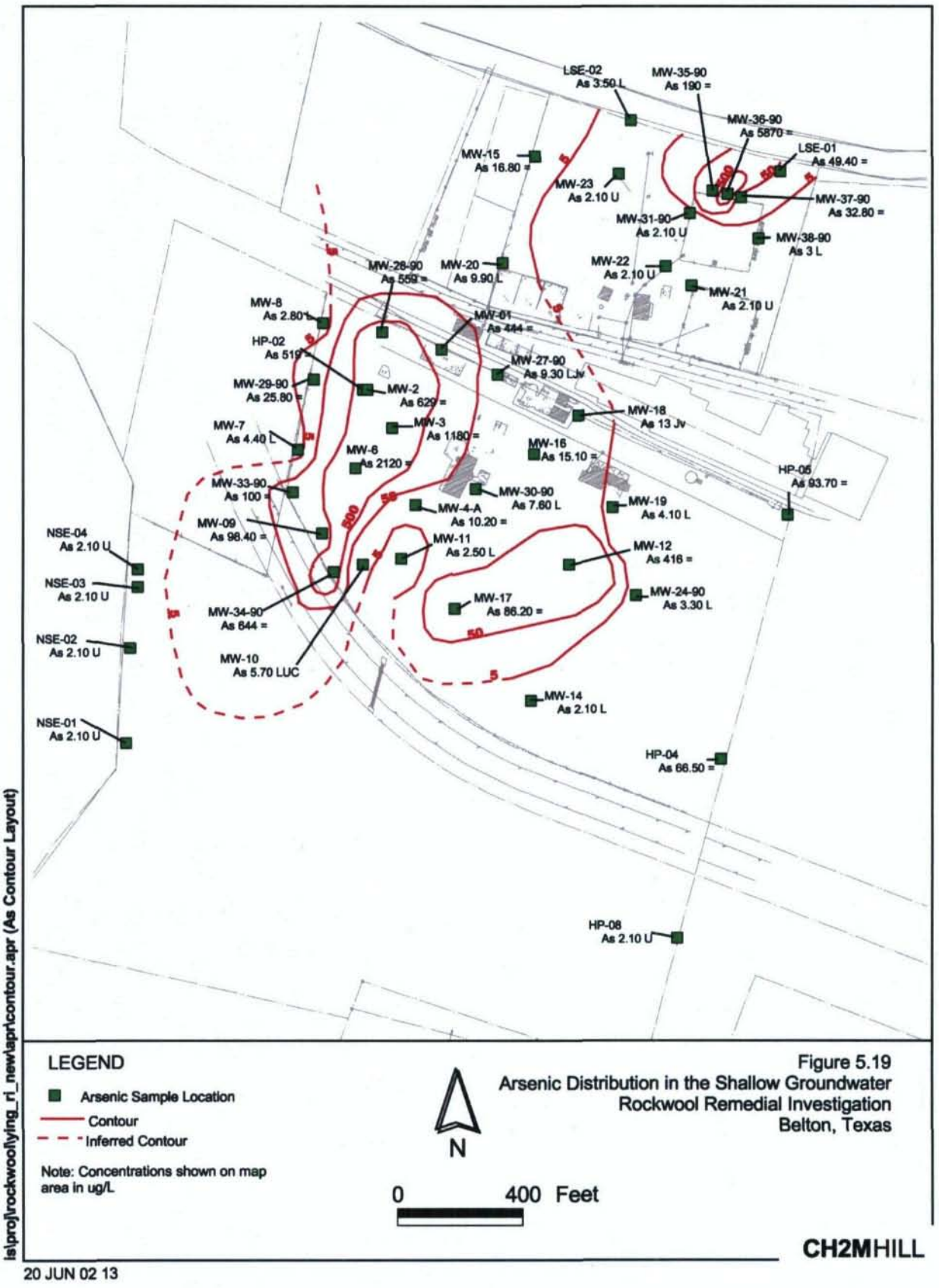


Figure 13. Arsenic Distribution in the Shallow Groundwater Based on June 2001 Sampling

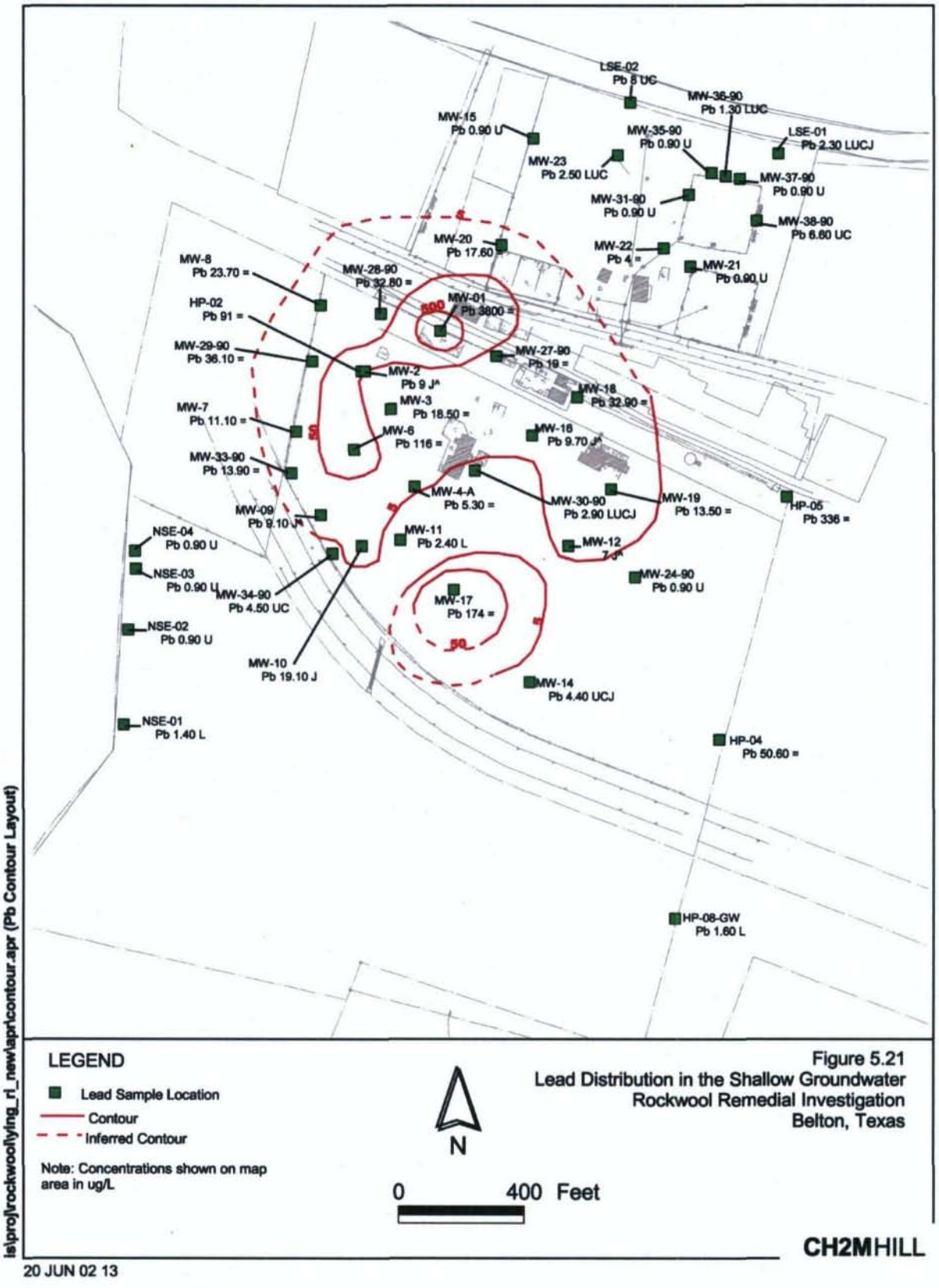


Figure 14. Lead Distribution in the Shallow Groundwater Based on June 2001 Sampling

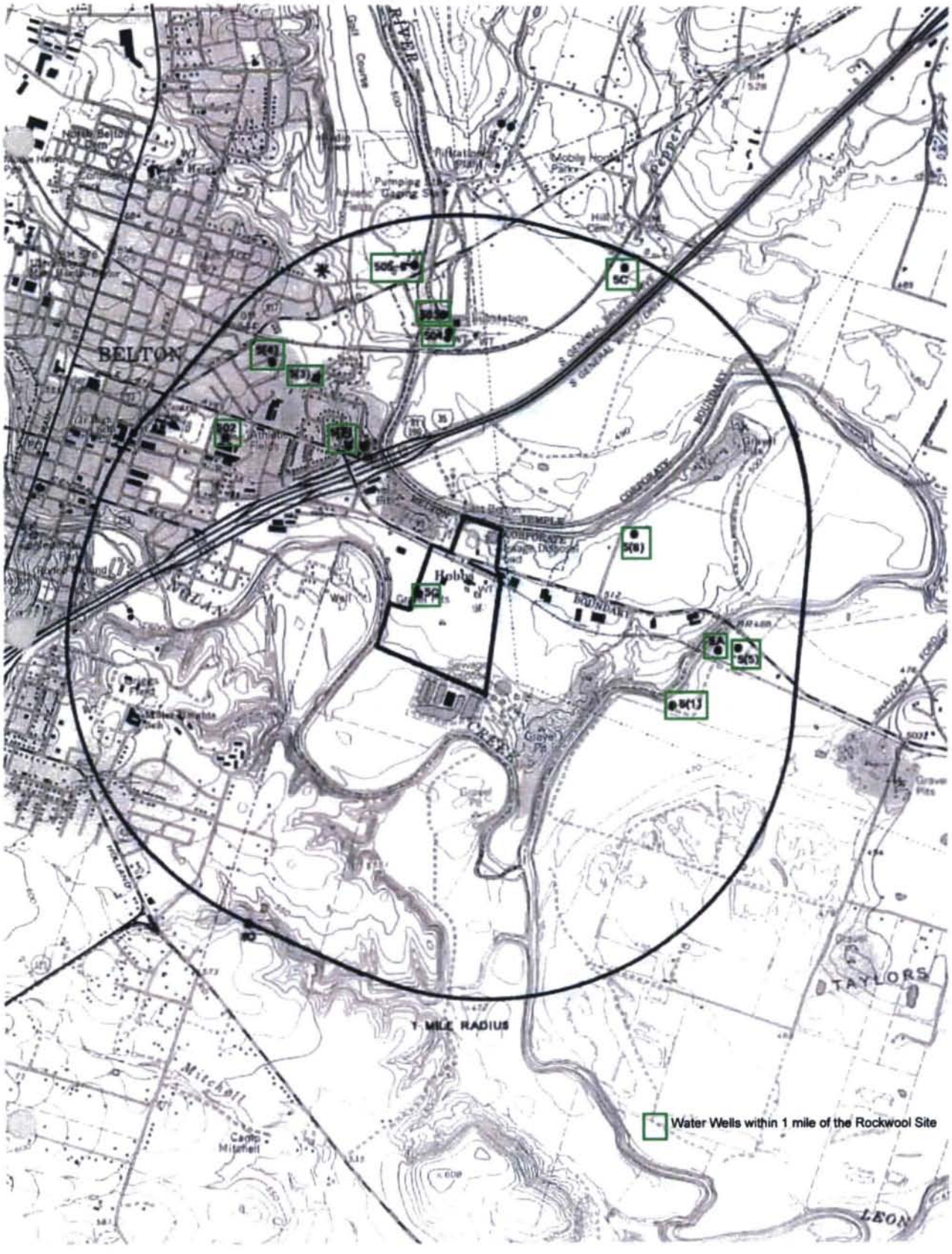


Figure 15. Water Well Locations Within 1 Mile Radius of the Rockwool Site

Table 1
Chronology of Site Events

Date	Event
1955	RWI begins mineral wool manufacturing operation
1976	Baghouse Waste Pond (SWMU #1) constructed
1980	Baghouse dust determined characteristically hazardous due to EP Toxicity Testing for Arsenic. Baghouse Dust Surface Impoundment registered as hazardous SWMU
1985	RWI facility ceases production of baghouse dust (EPA Hazardous Waste D004)
1987	RWI facility ceases production
1987	RCRA Facility Assessment (PR/VSI)
1988	Sampling Visit Report submitted by A.T. Kearney to EPA
1988	Closure Certification Report for Baghouse Waste Impoundment (SWMU #1)
	submitted to TWC by Waid & Associates
1988	TWC Closure Letter to RWI for Baghouse Dust Surface Impoundment (SWMU
1988	Corrective Action Plan Hazardous Waste Permit Application submitted to TWC by Waid & Associates
1989	Class II Landfill Closure Certification Report submitted to TWC by Cook-Joyce
1990	TWC letter issued to EPA stating RFI unnecessary at SWMUs 7, 9, 10, 11, 12, 13, 16, 17, and 18, and AOCs 1, 8, 9, and 11
1990	EPA letter to TWC agreeing that RFI unnecessary at SWMUs 7, 9, 10, 11, 12, 13, 16, 17, and 18, and AOCs 1, 8, 9, and 11
1990	Nonhazardous SWMUs Closure Plan submitted to TWC
1990	Closure Plan for Nonhazardous SWMUs submitted to TWC
1990	Baghouse Dust Pocket discovered onsite
1991	Baghouse Dust Pocket Closure Certification Report submitted to TWC
1991	TWC Closure Letter issued to RWI for Class II Landfill
1991	Closure Certification Report for Nonhazardous SWMUs submitted to TWC by Cook-Joyce
1991	Closure Certification Report for Class I Nonhazardous Landfill submitted by Cook-Joyce to TWC
1991	TWC letter issued to RWI acknowledging receipt of Nonhazardous SWMUs Closure Certification Report. Letter states "closure activities involving nonhazardous units do not require formal TWC approval".
1991	TWC letter issued to Cook-Joyce concurs that certain soils at site could be classified as Class III waste
1991	Closure Certification Report for Baghouse Dust Pocket submitted to TWC by Cook-Joyce
1991	TWC Closure Letter issued to RWI for Baghouse Dust Pocket
1991	Hazardous Waste Permit No. HW-50197 & Compliance Plan CP-50197 issued to RWI by TWC authorizing closure & post-closure care and requiring groundwater recovery program
1992	RFI Work Plan submitted to TWC
1993	Offsite Groundwater Investigation Report submitted to TWC by Cook-Joyce
1993	TWC letter issued to RWI concurs with conclusions of Offsite Groundwater
1994	Investigation Report Groundwater monitoring & recovery system shut down by RWI due to financial difficulties

Date	Event
1995	TNRCC issued notice of violation letter to RWI
1995	Preliminary Assessment Report submitted to EPA by Fluor Daniel
1996	TNRCC conducted a Superfund Site Inspection to identify the types of contaminants present, assess any releases that have occurred, and identify evidence of actual human and ecological exposures to contaminants
1999	Phase II Environmental Site Assessment, 5.87 Mile Georgetown Railroad Tract, Temple to Belton, Texas, by Raba-Kistner
2000	Technical Activities Workplan submitted to EPA
2000	Sampling and Analysis Plan submitted to EPA
April 2003	Remedial Investigation/Feasibility Study completed
August 2003	Interim Record of Decision issued
July 2004	Remedial Design completed
September 2004	Final Record of Decision issued
February 2005	Remedial Action begins
August 2005	Explanation of Significant Differences issued
September 2005	Completion of the Remedial Action
September 2005-present	EPA conducts O&M at the site

Table 2
Summary of Estimated Health Risks (RME Scenario)

Exposure Scenario	Cancer Risk		Non-carcinogenic Risk	
	Risk Level	Chemical[1]	Target Organ HI>1	Chemical[2]
Industrial Worker (OU2)				
Soil	2×10^{-5}	Arsenic	2 (Circulatory)	Antimony
Industrial Worker (Geer Property)				
Soil	3×10^{-5}	Arsenic	--	None
Industrial Worker (North Property)				
Soil	1×10^{-5}	Arsenic	--	None
Industrial Worker (Central Property)				
Soil	5×10^{-5}	Arsenic	5 (Circulatory)	Antimony
Industrial Worker (Non-Process Area)				
Soil	2×10^{-6}	Arsenic	--	None
Adult Fisher (Leon River)				
Surface Water	--	None	--	None
Fish	6×10^{-5}	Arsenic	4 (Circulatory)	Antimony
Fish			2 (Immune)	***Mercury***
Fish			5 (Circulatory)	***Thallium***
Adult Fisher (Nolan Creek)				
Fish	--	None	14 (Kidney)	***Cadmium***
Fish			8 (Circulatory)	***Thallium***
Adult Swimmer (Nolan Creek)				
Surface Water	--	None	--	None

Notes:

1-Chemical contributes to exposure pathway risk >1×10^{-6}

2-Chemical with Hazard Quotient >1

Bold/Italicized chemicals are within background concentrations

Table 3
Groundwater Monitoring Analytical Data

Well ID	ANTIMONY			ARSENIC			LEAD		
	June 2001 RI Result (µg/L)	December 2006 Groundwater Result (µg/L)	January 2007 Groundwater Result (µg/L)	June 2001 RI Result (µg/L)	December 2006 Groundwater Result (µg/L)	January 2007 Groundwater Result (µg/L)	June 2001 RI Result (µg/L)	December 2006 Groundwater Result (µg/L)	January 2007 Groundwater Result (µg/L)
North Property									
MW-15	***2770***	dry	dry	16.8	dry	dry	<0.9U	dry	dry
MW-20	< 1.6 U	2.1 BJ	2.1 BJ	9.9 L	3.5	4.2	***17.6***	0.89 J	0.41 J
MW-21	***823***	***736 B***	***1,730 B***	< 2.1 U	1.9 J	8.9	< 0.9 U	3.2	0.99 J
MW-35-90	***493***	***639 B***	***1,620 B***	***190***	***134***	***121***	< 0.9 U	***26.7***	1.3 J
MW-38-90	***366***	***199 B***	***4,510 B***	3 L	15.2	18.4	***< 6.6 U***	***40.1***	1.1 J
Central Property									
MW-09	***313***	***312 B***	***285 B***	***98.4***	***94.5***	***121***	***9.1 J^***	0.30 J	0.23 J
MW-09D	***313***	---	***292 B***	***98.4***	---	***121***	***9.1 J^***	---	0.29 J
MW-14	< 1.6 U	1.6 BJ	1.7 BJ	2.1 L	3.2	3.1	< 4.4 UJ	0.42 J	0.19 J
MW-14D	< 1.6 U	1.0 BJ	---	2.1 L	3.1	---	< 4.4 UJ	0.31 J	---
MW-17	***90***	***19.2 B***	***24.4 B***	***86.2***	2.9	3.7	***174***	0.60 J	0.57 J
MW-19	< 1.6 U	5.0 B	2.4 BJ	4.1 L	7.1	4.7	***13.5***	***10.3***	***7.7***
MW-28-90	***39.8 L***	***38.5 B***	2.9 BJ	***559***	***102***	12.2	***32.8***	2.6 J	***12.4***
MW-30-90	< 3.7 LU	3.2 B	***49.1 B***	7.6 L	9.1	***114***	< 2.9 LUJ	***14.5***	0.70 J
MW-33-90	***296***	***216 B***	***244 B***	***100***	41.7	30	***13.9***	***8.1***	0.41 J
MW-34-90	***382***	***378 B***	***409 B***	***644***	***422***	***384***	< 4.5 U	0.65 J	0.23 J
Equipment Rinsate	---	0.45 BJ	0.32 BJ	---	0.23 J	0.22 J	---	0.13 J	< 3

NOTES:

Bold-italicized	= Concentration exceeds the respective RAO for antimony = 6 µg/L, arsenic = 50 µg/L, or lead = 5 µg/L
Highlighted	= Concentration exceeds the Remedial Investigation GW PRG for protection of surface waters shown in Table 5.
---	= Not applicable
^	= Biased high
<	= Less than
µg/L	= Microgram per liter
B	= Method blank contamination. The associated method blank contains the target analyte at a reportable level.
D	= Field duplicate sample
J	= Estimated result. Result less than reporting limit. The reporting limit is equivalent to the Texas Risk Reduction Program method quantitation limit.
L	= Reported concentration is between the laboratory reported detection limit and the contract-required detection limit.
RI	= Remedial investigation
U	= Undetected at the laboratory reported detection limit

Samples analyzed for Total Metals using EPA SW-846 Method 6020

Table 4
Groundwater Monitoring Wells

Monitor Well Number	Top of Limestone Elevation (ft)	Total Well Depth (ft)	Well Screen Elevation	
			Top (ft)	Bottom (ft)
MW-07	491.8	33.0	500.5	490.5
MW-09	486.5	35.0	495.5	485.5
MW-10	489.3	35.0	491.3	486.3
MW-11	491.6	35.0	492.1	487.1
MW-14	477.5	39.0	483.0	473.0
MW-15	488	24.0	490.0	480.0
MW-16	485.7	36.0	490.7	480.7
MW-17	491.1	29.0	496.7	486.7
MW-18	487.8	NA	492.8	482.8
MW-19	487.5	35.5	492.8	477.3
MW-20	NA	38.9	NA	NA
MW-21	NA	16.6	NA	NA
MW-22	NA	14.5	NA	NA
MW-24-90	NA	39.0	NA	NA
MW-25-90	NA	NA	NA	NA
MW-27-90	487.2	33.1	491.2	486.2
MW-28-90	491.9	29.0	495.4	490.4
MW-29-90	491.8	27.4	495.3	488.3
MW-30-90	491.4	25.9	495.7	490.7
MW-33-90	488.4	30.0	492.4	487.4
MW-34-90	487.9	30.0	490.9	485.9
MW-35-90	NA	17.2	NA	NA
MW-36-90	NA	23.8	NA	NA
MW-37-90	NA	26.4	NA	NA
MW-38-90	NA	12.1	NA	NA

Table 5
Groundwater PRGs for the Protection of Surface Waters

COCs	Max. GW Conc. (µg/L)	Max. Seep Conc. (µg/L)	GW Flow Rate (gpm)	7Q2 SW Flow Rate (gpm)	Dilution Factor	Applicable SW Quality Standard (µg/L)	GW PRG (µg/L)
Leon River (North Area)							
Antimony	2,770	1,250	2.3	1,122	0.002046	6[b]	**2,932**
Arsenic	5,870	49.4	2.3	1,122	0.002046	50[a]	**24,441**
Lead	4	ND	2.3	1,122	0.002046	5[a]	**2,444**
Nolan Creek (South Area)							
Antimony	4,350	34.2	4.8	1,122	0.004298	6[b]	**1,396**
Arsenic	2,120	ND	4.8	1,122	0.004298	50[a]	**11,633**
Lead	3,800	1.4	4.8	1,122	0.004298	5[a]	**1,163**

Notes:

a: TSWQS. The TSWQS presented is the lower values of the Texas aquatic life protection and human health protection criterion in 2003.

b: A TSWQS is not available for antimony; therefore, the EPA Region 6 tap water MCL is selected as the SW quality criterion for antimony.

GW: Groundwater

SW: Surface Water

7Q2: 7-day 2-year low flow

Source (CH2M HILL, 2003)

Table 6
Groundwater Elevation Data

Well ID	December 18-20, 2006			January 9-11, 2007		
	Depth to Water (feet btoc)	TOC Elevation (feet msl)	Groundwater Elevation (feet msl)	Depth to Water (feet btoc)	TOC Elevation (feet msl)	Groundwater (feet m
MW-07	30.25	521.23	490.98	29.87	521.23	491.3
MW-09	28.81	518.86	490.05	28.58	518.86	490.2
MW-10	27.44	518.45	491.01	27.19	518.45	491.2
MW-11	27.25	519.37	492.12	27.26	519.37	492.1
MW-14	32.35	514.02	481.67	30.21	514.02	483.8
MW-15	Dry	509.49	Unk	Dry	509.49	Unk
MW-16	Dry	519.22	Unk	Dry	519.22	Unk
MW-17	26.29	518.18	491.89	26.09	518.18	492.0
MW-19	32.71	520.31	487.6	32.61	520.31	487.
MW-20	32.25	519.7	487.45	32.16	519.7	487.5
MW-21	9.99	505.11	495.12	8.55	505.11	496.5
MW-22	11.75	505.18	493.43	10.52	505.18	494.6
MW-24-90	33.74	518.46	484.72	33.59	518.46	484.8
MW-27-90	34.48	519.76	485.28	34.32	519.76	485.4
MW-28-90	30.41	519.84	489.43	29.62	519.84	490.2
MW-29-90	27.9	517.56	489.66	27.67	517.56	489.8
MW-30-90	27.63	520.17	492.54	27.57	520.17	492.
MW-33-90	30.09	520.25	490.16	29.74	520.25	490.5
MW-34-90	28.97	519.12	490.15	28.78	519.12	490.3
MW-35-90	15.96	501.03	485.07	13.76	501.03	487.2
MW-36-90	NA	501.96	Unk	NA	501.96	Unk
MW-37-90	17.64	501.52	483.88	13.97	501.52	487.5
MW-38-90	8.82	504.05	495.23	5.67	504.05	498.3

NOTES:

btoc	= Below top of casing
msl	= Mean sea level
NA	= Not applicable; well appears to be capped at a depth of 2.47 feet below the top of casing
TOC	= Top of casing
Unk	= Unknown

Attachment 1

Documents Reviewed

Attachment 1
List of Documents Reviewed

U.S. Environmental Protection Agency (EPA), 2001. *Comprehensive Five-Year Review Guidance.* OSWER No. 9355.7-03B-P. June.

CH2M Hill, Inc. (CH2M Hill). 2003. *Final Remedial Investigation and Feasibility Study Report, Rockwool Industries, Inc. Superfund Site, Belton, Texas.* April.

EPA. 2003. *Interim Record of Decision, Rockwool Industries Inc., Superfund Site, Region 6.* August.

CH2M Hill. 2004. *Draft Design Criteria/Design Basis and Prefinal (90%) Design Report for Rockwool Industries, Inc., Belton, Texas.* July.

EPA. 2004. *Final Record of Decision, Rockwool Industries, Inc. Superfund Site, Region 6.* September.

EPA. 2005. *Explanation of Significant Differences, Rockwool Industries, Inc. Superfund Site, Region 6.* September.

Tetra Tech. 2005. *Preliminary Close out Report, Rockwool Industries, Inc. Superfund Site, Belton, Texas.* September.

CH2M HILL. 2005. "Revised Rockwool O&M Cost Memorandum", November 14, 2005.

CH2M HILL, 2006. *Operations and Maintenance Plan for Rockwool Industries, Inc. Belton, Texas.* January.

Tetra Tech. 2006. Remedial Action Report, *Rockwool Industries, Inc. Superfund Site, Belton, Bell County, Texas.* February.

EA Engineering Science and Technology, Inc. 2007. *Baseline Operations and Maintenance Report, Rockwool Industries, Inc. Superfund Site, Belton, Texas.* February.

Attachment 2

Interview Record Forms

Five-Year Review Interview Record Rockwool Industries, Inc. Superfund Site Belton, Bell County, Texas			**Interviewee:** Steve Jones Phone: 254-493-1026 email: hotairsdj@gmail.com	
Site Name: Rockwool Industries, Inc. Superfund Site	**EPA ID No.** TXD06637964		**Date of Interview** 3/22/2011	**Interview Method**
Interview Contacts	**Organization**	**Phone**	**Email**	**Address**
Shawn Ghose	EPA Region 6	214-665-6782	Ghose.Shawn@epamail.epa.gov	1445 Ross Ave Dallas, TX 75202-2733
John Hickman	U.S. Army Corps of Engineers	918-669-7142	john.a.hickman@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609
Richard Smith	U.S. Army Corps of Engineers	918 669-4956	Richard.P.Smith@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609

Interview Questions (scope of the interview is from 2005 to present)

1. What is your overall impression of the work conducted at the site since 2005?

Response: Good work overall.

2. From your perspective, what effect have remedial operations at the site had on the surrounding community? Are you aware of any ongoing community concerns regarding the site or its operation and maintenance?

Response: Work is a positive for community. It will provide good place for future development

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

Response: We work next to remediated site

4. Are you aware of any events, incidents, or activities that have occurred at the site such as dumping, vandalism, or anything that required emergency response from local authorities? If so, please give details.

Response: Spotty vandalism. We have reported people at site to Belton Authorities and try to watch.

5. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and result. **Response:** No.
6. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action, or a change in O&M procedures? If so, please describe changes and impacts. **Response:** No
7. Have there been any changes in state or federal environmental standards since 2005 which may call into question the protectiveness or effectiveness of the remedial action? **Response:** No
8. Do you know of opportunities to optimize the operation, maintenance, or sampling efforts at the site since 2005, and have such changes been implemented? **Response:** No
9. Do you feel well-informed about the site's activities and progress? **Response:** No.
10. Do you have any comments, suggestions, or recommendations regarding the site? **Response:** Needs to have old buildings torn down on remediated Site and better clean up of land to make more attractive to community

Five-Year Review Interview Record Rockwool Industries, Inc. Superfund Site Belton, Bell County, Texas			**Interviewee:** Les Hallbauer Phone: 254-933-5823 email: lhallbauer@ci.belton.tx.us	
Site Name: Rockwool Industries, Inc. Superfund Site	**EPA ID No.** TXD06637964		**Date of Interview** March 18, 2011	**Interview Method** email
Interview Contacts	**Organization**	**Phone**	**Email**	**Address**
Shawn Ghose	EPA Region 6	214-665-6782	Ghose.Shawn@epamail.epa.gov	1445 Ross Ave Dallas, TX 75202-2733
John Hickman	U.S. Army Corps of Engineers	918-669-7142	john.a.hickman@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609
Richard Smith	U.S. Army Corps of Engineers	918 669-4956	Richard.P.Smith@usacc.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609

Interview Questions (scope of the interview is from 2005 to present)

1. What is your overall impression of the work conducted at the site since 2005?

Response: Satisfactory

2. From your perspective, what effect have remedial operations at the site had on the surrounding community? Are you aware of any ongoing community concerns regarding the site or its operation and maintenance?

Response: Only the recognition the cap must be preserved in place rather than having a "clean" site.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

Response: Yes, TCEQ (Alvie Nichols – Superfund);
EPA visited in September.
City of Belton has handled routine maintenance such as mowing, clean up and new signs; fences needing to be repaired are along the cemetery, south of the railroad and next to the trucking company.

4. Are you aware of any events, incidents, or activities that have occurred at the site such as dumping, vandalism, or anything that required emergency response from local authorities? If so, please give details.

Response: No

5. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and result.

Response: None

6. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action, or a change in O&M procedures? If so, please describe changes and impacts.

Response: No

7. Have there been any changes in state or federal environmental standards since 2005 which may call into question the protectiveness or effectiveness of the remedial action?

Response: Not aware of any

8. Do you know of opportunities to optimize the operation, maintenance, or sampling efforts at the site since 2005, and have such changes been implemented?

Response: No

9. Do you feel well-informed about the site's activities and progress?

Response: We were informed recently about site monitoring and Operations and Maintenance by EPA and TCEQ at 5 year anniversary. There has been little other activity.

10. Do you have any comments, suggestions, or recommendations regarding the site?

Response: No

Five-Year Review Interview Record	**Interviewee: Alvie L. Nichols**

Rockwool Industries, Inc. Superfund Site Belton, Bell County, Texas			Phone: 512-239-2439 email: alvie.nichols@tceq.texas.gov	
Site Name: Rockwool Industries, Inc. Superfund Site	**EPA ID No.** TXD06637964		**Date of Interview** 3/29/11	**Interview Method** E-mail
Interview Contacts	**Organization**	**Phone**	**Email**	**Address**
Shawn Ghose	EPA Region 6	214-665-6782	Ghose.Shawn@epamail.epa.gov	1445 Ross Ave Dallas, TX 75202-2733
John Hickman	U.S. Army Corps of Engineers	918-669-7142	john.a.hickman@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609
Richard Smith	U.S. Army Corps of Engineers	918 669-4956	Richard.P.Smith@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609

Interview Questions (scope of the interview is from 2005 to present)

1. What is your overall impression of the work conducted at the site since 2005?

The Preliminary Closeout Report (PCOR) was signed by EPA on September 29, 2005. The PCOR identified major Operations & Maintenance (O&M) tasks which included maintenance of the clay and MATCON caps, inspection of the Leon River bank, periodic mowing, and the sampling of a limited number of monitor wells. The O&M Plan (dated January 2006) specifies semi-annual site inspections and semi-annual groundwater sampling events. The Baseline O&M Report (dated February 2007) was prepared for the EPA. It documented a site inspection in December 2006 and two groundwater sampling events conducted in December 2006 and January 2007. There have been minor repairs/patches to the waste containment cell cap and perimeter. The fences around portions of the site need to be repaired or replaced. In 2010, the EPA conducted some repairs to the perimeter asphalt of the waste containment cell cover.

2. From your perspective, what effect have remedial operations at the site had on the surrounding community? Are you aware of any ongoing community concerns regarding the site or its operation and maintenance?

I am not aware that the remedial operations have had any effect on the surrounding community, nor am I aware of any ongoing community concerns.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

The TCEQ conducted several site visits which dealt with the inspection of the waste containment cell and EPA's repair to the asphalt perimeter in 2010. TCEQ has also met with a contractor to view the site to assist them in preparing an Operation and Maintenance Plan and a Field Sampling Plan. The TCEQ has had communications with the City of Belton to discuss plans for future O&M responsibilities and legal issues relating to the liens on the site.

4. Are you aware of any events, incidents, or activities that have occurred at the site such as dumping, vandalism, or anything that required emergency response from local authorities? If so, please give details.

Response: I am not aware of any events occurring at the site that required any emergency response.

5. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and result.

The TCEQ was contacted multiple times in 2006 by utility companies seeking access to the property. Prior to granting access, it was necessary for the TCEQ to coordinate with the City of Belton and the EPA.

6. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action, or a change in O&M procedures? If so, please describe changes and impacts.

In response to TCEQ observations of localized cracking of the asphalt perimeter located adjacent to the drainage ditch, the EPA conducted repairs to these areas in late 2010. It should be noted that the asphalt cover over the waste containment cell was determined by EPA to not be in need of repair (i.e., the integrity of the cover over the waste containment cell was not compromised).

7. Have there been any changes in state or federal environmental standards since 2005 which may call into question the protectiveness or effectiveness of the remedial action?

Based on the 2004 EPA Superfund Record of Decision (ROD) for the site, the contaminants of concern in groundwater included antimony, arsenic, and lead. In the ROD, the remedial action objectives (RAOs) for antimony, arsenic, and lead were established at 6 ug/L, 50 ug/L and 5 ug/L, respectively. However, the federal maximum contaminant level (MCL) for arsenic in groundwater was changed from 50 ug/L to 10 ug/L on February 21, 2002. The remedial action in association with achieving groundwater RAOs may be difficult to achieve due to the change of the arsenic MCL.

Groundwater sampling events have not been conducted on a consistent basis and are inconclusive at this time. Available analytical data from the June 2001, December 2006 and January 2007 events do suggest a general concentration decrease over time but many samples still exceeded the established remedial action objectives. Analytical data from the 2006 and 2007 sampling events for antimony are unusable due to method blank contamination.

8. Do you know of opportunities to optimize the operation, maintenance, or sampling efforts at the site since 2005, and have such changes been implemented? **I am not aware of any optimization efforts.**
9. Do you feel well-informed about the site's activities and progress? **The TCEQ received notice of the waste containment cell repairs conducted in late 2010 but did not receive notice from the EPA regarding subsequent changes to the schedule.**
10. Do you have any comments, suggestions, or recommendations regarding the site? **Based on discussions between the TCEQ and the EPA in late 2010, it is understood that the EPA agreed to conduct appropriate repairs to localized areas of the asphalt perimeter of the waste containment cell, and that EPA would extend the O&F period for the cell/drainage/runoff control for one year. In return, the TCEQ agreed to assume O&M responsibilities for tasks such as groundwater monitoring, mowing, fencing, drainage and site maintenance. In addition, the EPA agreed to conduct a five-year review of the site in 2011.**

Five-Year Review Interview Record Rockwool Industries, Inc. Superfund Site Belton, Bell County, Texas			**Interviewee:** Shawn Ghose Phone: email:	
Site Name: Rockwool Industries, Inc. Superfund Site	**EPA ID No.** TXD06637964		**Date of Interview** Mar 31, 2011	**Interview Method** Email
Interview Contacts	**Organization**	**Phone**	**Email**	**Address**
Shawn Ghose	EPA Region 6	214-665-6782	Ghose.Shawn@epamail.epa.gov	1445 Ross Ave Dallas, TX 75202-2733
John Hickman	U.S. Army Corps of Engineers	918-669-7142	john.a.hickman@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609
Richard Smith	U.S. Army Corps of Engineers	918 669-4956	Richard.P.Smith@usace.army.mil	1645 S. 101st E. Ave Tulsa, OK 74128-4609

Interview Questions (scope of the interview is from 2005 to present)

1. What is your overall impression of the work conducted at the site since 2005?

Response: 2 projects were completed since 2005:
1] A baseline O&M Report; some monitor well results were inconsistent i.e. certain As , Sb values were in error. All other parts of the baseline survey showed all remedies e.g. the ACB blocks on Leon River bank and the Matcon cap, the mosquito pond in good shape.
2] EPA's removal action in Sept 2010 through ERRS contract ,to augment drainage on the southside of the Matcon cap, looked to be in excellent shape. The inspection in March 2011 of the Matcon cap showed it to be performing as designed with no washout on the southside..

2. From your perspective, what effect have remedial operations at the site had on the surrounding community? Are you aware of any ongoing community concerns regarding the site or its operation and maintenance?

Response: The city of Belton is trying hard to promote industrial redevelopment in the area. The neighboring industrial facilities want new business to move into the area (alredy a light industrial area) and increase employment. The only concern is that redevelopment is not taking place fast enough.

3. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe purpose and results.

Response: The site has been visited by EPA about ten times in the past five years.

4. Are you aware of any events, incidents, or activities that have occurred at the site such as dumping, vandalism, or anything that required emergency response from local authorities? If so, please give details.

Response: No

5. Have there been any complaints, violations, or other incidents related to the site that required

a response by your office? If so, please summarize the events and result.

Response: Nothing other than some displaced signs.

6. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action, or a change in O&M procedures? If so, please describe changes and impacts.

Response: No

7. Have there been any changes in state or federal environmental standards since 2005 which may call into question the protectiveness or effectiveness of the remedial action?

Response: No

8. Do you know of opportunities to optimize the operation, maintenance, or sampling efforts at the site since 2005, and have such changes been implemented?

Response: O&M has not been in force as TCEQ has not accepted the O&M process

9. Do you feel well-informed about the site's activities and progress?

Response: Surely

10. Do you have any comments, suggestions, or recommendations regarding the site?

Response: The way the remedy was done the site requires very little maintenence. Monitoring of the remaining groundwater wells is redundant as no remedy was necessary for the shallow groundwater. Institutional Control is implemented by City of Belton Ordinance # 2005-46 which prohibits drilling into or use of the shallow groundwater. Thus the exposure pathway to the shallow groundwater has been eliminated.

Attachment 3

Site Inspection Checklist

Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Rockwool Industries, Inc. Superfund Site	**Date of inspection: March 17-18, 2011**
Location and Region: Belton, Texas	**EPA ID:** TXD06637964
Agency, office, or company leading the Five-Year Review: USACE	**Weather/temperature: 80's, cloudy**

Remedy Includes: (Check all that apply)

- ✓ Landfill cover/containment
- ☐ Access controls
- ✓ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection
- ☐ Other:
- ☐ Monitored natural attenuation
- ☐ Groundwater containment (Cap)
- ☐ Vertical barrier walls

Attachments: ✓ Inspection team roster attached ☐ Site map attached

Inspection Team: Richard Smith, John Hickman

II. INTERVIEWS (Check all that apply)

1. **O&M site manager**
   Name: Shawn Ghose Title: Remedial Project Manager Date:
   Interviewed ☐ at site ☐ at office ☐ by phone ✓ by email Phone no. (214) 665-6782
   Problems, suggestions: *see interview form*

2. **O&M staff**
   Name: Les Hallbauer Title: City of Belton Public Works Director Date:
   Interviewed ☐ at site ☐at office ☐ by phone ✓ by email Phone no. (254) 933-5823
   Problems, suggestions: *see interview form*

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency: TCEQ
Contact
Name: Alvie Nichols Title: Project Manager Date: Phone no. (512) 239-2439
Problems; suggestions; *see interview form*

Agency:
Contact
Name: Title: Date: Phone no.
Problems; suggestions: see interview form

Agency:
Contact
Name: Title: Date: Phone no.
Problems; suggestions; see interview form

Other interviews (optional) ✓ Report attached.

Interview record forms are provided in Attachment 2 to the five-year review.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

✓ O&M manual	✓ Readily available	✓ Up to date	☐ N/A
✓ As-built drawings	✓ Readily available	✓ Up to date	☐ N/A
✓ O&M logs	✓ Readily available	☐ Up to date	☐ N/A

Remarks: *Only one site inspection report was available for the review. The as-built drawing s do not show details of the September 2010 Matcon cap repairs.*

2. **Site-Specific Health and Safety Plan** ☐Readily available ☐ Up to date ☐ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A
Remarks: *Site O&M work is following the site health and safety plan.*

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date ☐ N/A
Remarks: *Site O&M work is following the site health and safety plan.*

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	✓ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	✓ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	✓ N/A
☐ Other permits_____	☐ Readily available	☐ Up to date	✓N/A

Remarks: *No permits are required at this site.*

5.	**Gas Generation Records** Remarks:	☐ Readily available	☐ Up to date	✓ N/A
6.	**Settlement Monument Records** Remarks:	☐ Readily available	☐ Up to date	✓ N/A
7.	**Groundwater Monitoring Records** Remarks: *Only two groundwater sampling events have been conducted since the completion of the RA, in December 2006 and January 2007.*	✓ Readily available	☐ Up to date	☐ N/A
8.	**Leachate Extraction Records** Remarks:	☐Readily available	☐ Up to date	✓ N/A
9.	**Discharge Compliance Records** ☐ Air ☐ Water (effluent) Remarks	☐ Readily available ☐ Readily available	☐ Up to date ☐ Up to date	✓ N/A ✓ N/A
10.	**Daily Access/Security Logs** Remarks: *There are no daily access/security logs for this site.*	☐ Readily available	☐ Up to date	✓ N/A

IV. O&M COSTS

1. **O&M Organization**
   ☐ State in-house ☐ Contractor for State
   ☐ PRP in-house ☐ Contractor for PRP
   ✓ Federal Facility in-house ☐ Contractor for Federal Facility
   Remarks: *The City of Belton mows the site 2-3 times per year and maintains the warning signs around the site. EPA has conducted groundwater monitoring and repairs to the CC cover.*

2. **O&M Cost Records**
   ✓ Readily available ✓ Up to date
   ☐ Funding mechanism/agreement in place (entirely funded by PRP)
   Original O&M cost estimate ☐ Breakdown attached

   $23,480/year
   $117,480/first five years

   Total annual cost by year for review period if available

   From ☐ Breakdown attached
   Date 9/2005 Date 4/2011 Total cost $98,564

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons:
   There was a cost of $49,564 for repair of erosion along the southern edge of the Matcon cap.

V. ACCESS AND INSTITUTIONAL CONTROLS ✓ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ✓ Gates secured ☐ N/A
Remarks: *There are no fencing requirements for the site given in the ROD, however, the city maintains a fence along the southern borders of the Central and North Properties. The fence is damaged and partially missing adjacent to the paved asphalt parking on the North Property.*

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks: *There are warning signs around the perimeter of the areas with capped wastes. Warning signs were missing along the paved asphalt area and along the eastern and northern boundaries of the North Property.*

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented ☐ Yes ✓ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ✓ No ☐ N/A

Type of monitoring:
Frequency:
Responsible party/agency:

Contact:

Name: Title Date Phone no. ( )

Reporting is up-to-date ☐ Yes ☐ No ✓ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ✓ N/A

Specific requirements in deed or decision documents have been met ✓ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ✓ N/A
Remarks:

The City of Belton has implemented institutional controls on the site by city ordinance. TCEQ has implemented deed restrictions on the properties. The property continues to be zoned for industrial use as specified in the ROD.

2. **Adequacy** ✓ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks:

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ✓ No vandalism evident
Remarks: *Business owner at the site Steve Jones stated that some vandalism had occurred on the site.*

2. **Land use changes on site** ☐ N/A
Remarks: *Part of the North Property is being used as a parking lot and material storage area. OU2 is being used as a fiberglass manufacturing facility.*

3. **Land use changes off site** ✓ N/A
Remarks:

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ✓ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ✓ N/A

   Remarks:

B. Other Site Conditions

Remarks :

VII. ENGINEERED COVERS ✓ Applicable ☐ N/A

A. Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks: *There are some areas around the perimeter of the Matcon cap where water ponds.*

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks: *There are some unpatched cracks on the Matcon cap. There are some small cracks in the cap of the North Shot Pile.*

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____

   Remarks: *There is active erosion near the western edge of the capped evaporation lagoon.*

4. **Holes** ☐ Location shown on site map ✓ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ✓ Grass ☐ Cover properly established ☐ No signs of stress
   ✓ Trees/Shrubs (indicate size and locations on a diagram)

   Remarks: *There is a good cover of grass on the NSPe, the capped EVL and most of the CSP. There is sparse vegetation cover on the western edge of the CSP, and in areas of the capped in place wastes in the Central Property area. There are small trees and brush growing out of the ACB on the stabilized Leon River bank.*

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks: *There is a Matcon cap over the waste containment cell. The cap has some unsealed cracks.*

7. **Bulges** ☐ Location shown on site map ✓ Bulges not evident
   Areal extent_____ Height_____
   Remarks

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident

☐ Wet areas	☐ Location shown on site map	Areal extent_____
✓ Ponding	☐ Location shown on site map	Areal extent_____
☐ Seeps	☐ Location shown on site map	Areal extent_____
☐ Soft subgrade	☐ Location shown on site map	Areal extent_____

Remarks: *There are some areas along the perimeter of the Matcon cap where it appears the cap has settled, and water ponds. The cap has been recently repaired due to damage to the cap due to erosion along the southern edge. There appears to be some additional erosion occurring along the perimeter, although to a much less extent than occurred along the southern edge.*

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
Remarks: *The ACB is unstable and discontinuous at the toe of the Leon River bank in the area between of the NSP and the EVL.*

B. Benches ☐ Applicable ✓ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ okay
Remarks

2. **Bench Breached** ☐ Location shown on site map ☐ okay
Remarks

3. **Bench Overtopped** ☐ Location shown on site map ☐ okay
Remarks

C. Letdown Channels ✓ Applicable ☐ N/A

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Evidence of Erosion ☐ No evidence of erosion
Areal extent_____ Depth_____

Remarks:

4. **Undercutting** ☐ Evidence of undercutting ✓ No evidence of undercutting

Remarks: *There are cracks about 0.5 inches wide in the concrete of the drainage pipe outfall in the stabilized Leon River bank. This is a potential location for undercutting and should be repaired.*

5. **Obstructions** Type _____ ☐ No obstructions
☐ Location shown on site map Areal extent _____
Size _____
Remarks: *The corrugated metal pipe in the stabilized Leon River bank, and one of the pipes through the Cemetery Shot Pile are partially clogged.*

6. **Excessive Vegetative Growth** Type _____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent _____
Remarks _____

D. Cover Penetrations ☐ Applicable ✓ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks:

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks _____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks _____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks:

E. Gas Collection and Treatment ☐ Applicable ✓ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks _____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks _____

F. Cover Drainage Layer ☐ Applicable ✓ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks:

G. Detention/Sedimentation Ponds ✓ Applicable ☐ N/A

1. **Siltation** Areal extent _____ Depth _____ ☐ N/A
   ✓ Siltation not evident
   Remarks _____

2. **Erosion** Areal extent _____ Depth _____
   ✓ Erosion not evident
   Remarks

3. **Outlet Works** ✓ Functioning ☐ N/A
   Remarks _____

4. **Dam** ✓ Functioning ☐ N/A
   Remarks _____

H. Retaining Walls ☐ Applicable ✓ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ✓ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ✓ Siltation not evident
   Areal extent_____ Depth_____
   Remarks

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ✓ Vegetation does not impede flow
   Areal extent_____ Type brush
   Remarks:

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks: *The erosion control matting is suspended several inches above the CC perimeter drainage ditch in places. There is minor erosion of the subbase the perimeter of the CC cap and ditch.*

4. **Discharge Structure** ☐ Functioning ✓ N/A
   Remarks

VIII. VERTICAL BARRIER WALLS ☐ Applicable ✓ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring
   ☐ Performance not monitored
   Frequency ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ✓ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ✓ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ✓ N/A

1. ***Collection Structures, Pumps, and Electrical***
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks:

C. Treatment System ☐ Applicable ✓ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐ Equipment properly identified
   Remarks:

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks: *Single walled tanks with concrete secondary containment pads.*

4. **Discharge Structure and Appurtenances**
☐ N/A ☐ Good condition ☐ Needs Maintenance
Remarks_____

5. **Treatment Building(s)**
☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks:

6. **Monitoring Wells** (pump and treatment remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks:

D. Monitoring Data

1. Monitoring Data
☐ Is routinely submitted on time ☐ Is of acceptable quality

F. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
✓ All required wells located ✓ Needs Maintenance ☐ N/A
Remarks: *MW-33-90 is missing the lock. MW-15 cannot be sampled because it is clogged. The O&M plan specifies semi-annual sampling for the first five years after the RA, but has only been sampled twice. In sample analyses for both events there was a method blank contamination for antimony. Wells MW-7, MW-14, MW-15, MW-17, and MW-25-90 are missing identification marking. The soil has eroded out from underneath well MW-28-90. Well MW-17 and MW-20 are overgrown with brush. Wells MW-18 and MW-25-90 were found on the site, but were considered lost or assumed to be abandoned in past work at the site.*

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy is intended to prevent exposure to waste materials, contaminated soils, and contaminated shallow groundwater, prevent waste from being transported into surface water, and to reduce contaminant leaching into the groundwater, which discharges into surface water. The remedy included the excavation, consolidation and capping in a containment cell or capping in place waste materials and contaminated soils, installation of drainage pipes to route surface water flow past waste materials, and implementation of institutional controls to protect the integrity of the containment cell, clay caps, monitor wells, and surface water controls, and to prevent exposure to contaminated ground water in shallow water bearing zone.

No groundwater PRGs (GW PRGs) for the protection of surface water were included in the ROD to allow evaluation of whether the remedy is protective of surface water, however, GW PRGs were presented in the Remedial Investigation. One groundwater sample exceeded its GW PRG for antimony which indicates a possibility of an exceedance of the surface water RAO, and additional groundwater monitoring needs to be conducted to verify the remedy is achieving the surface water RAO. The remedy is appears to be effective and functioning as designed.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The O&M plan calls for annual inspections and semi-annual groundwater monitoring for the first five years. Although the Matco cap has been inspected several times and repaired, only one full inspection of the site has taken place, and only two groundwater sampling events have taken place. The ROD intended that fish tissue sampling be conducted for evaluation in the five-year review of the human health risk to consuming the fish. The fish tissue sampling has not been conducted, and this evaluation was not conducted in this review. More frequent inspections and more timely repairs are needed to avoid larger, more costly repairs.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

No early indicators potential remedy problems were observed that suggest that the protectiveness of the remedy may be compromised in the future.

D Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
No opportunities for optimization were identified during this review.

Attachment 4

Site Inspection Photographs

Monitoring Wells

Photo 1. MW-07, no identification marker, enclosed in a corrugated metal housing.

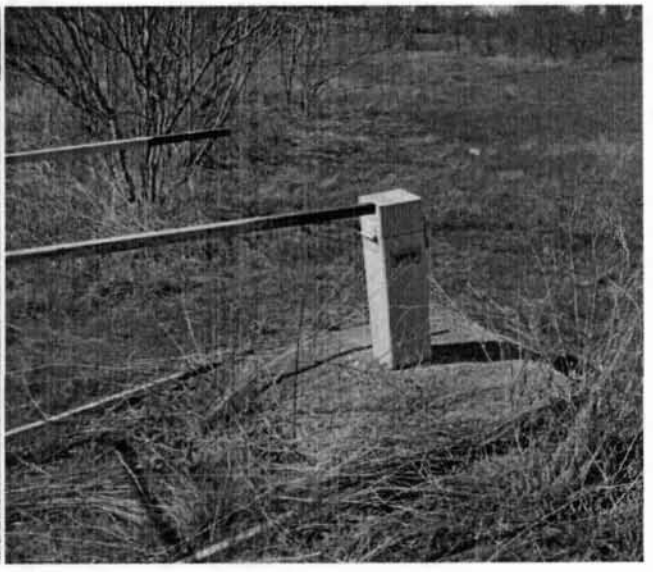


Photo 2. MW-09

Photo 3. MW-10

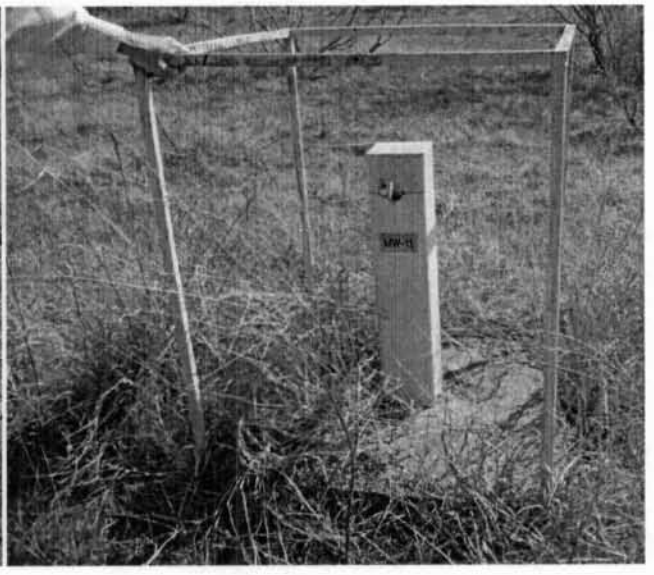


Photo 4. MW-11

Monitoring Wells

Photo 5. MW-14, has no identification marker

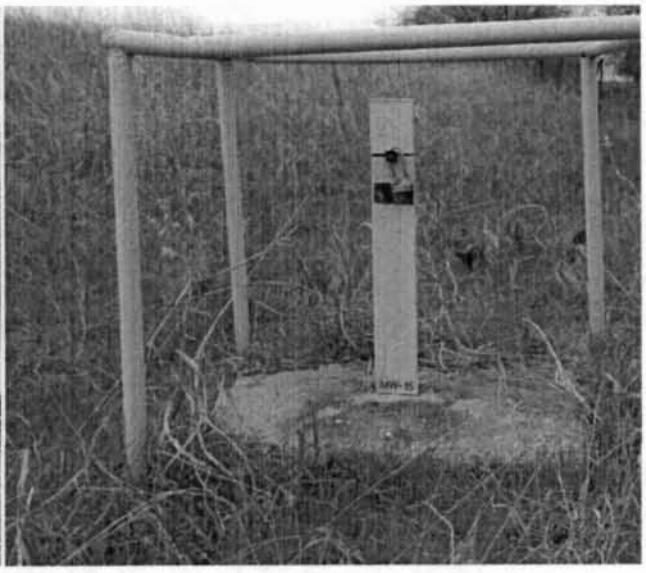


Photo 6. MW-15, identification marker has fallen off

Photo 7. MW-16

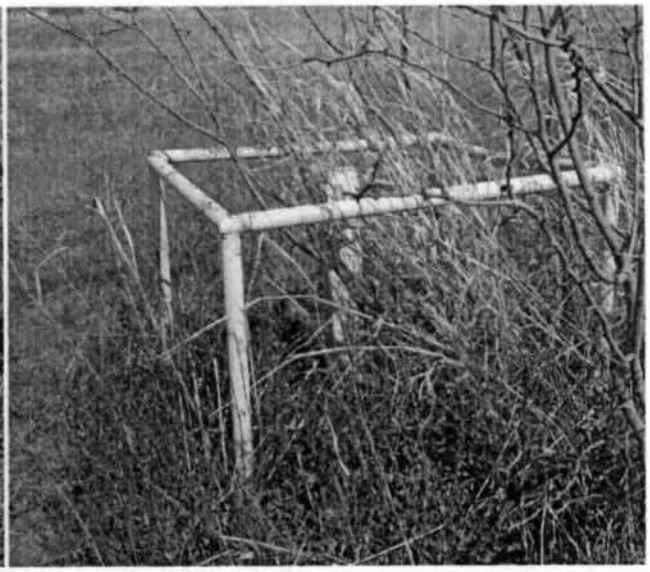


Photo 8. MW-17, has no identification marker, overgrown

Monitoring Wells

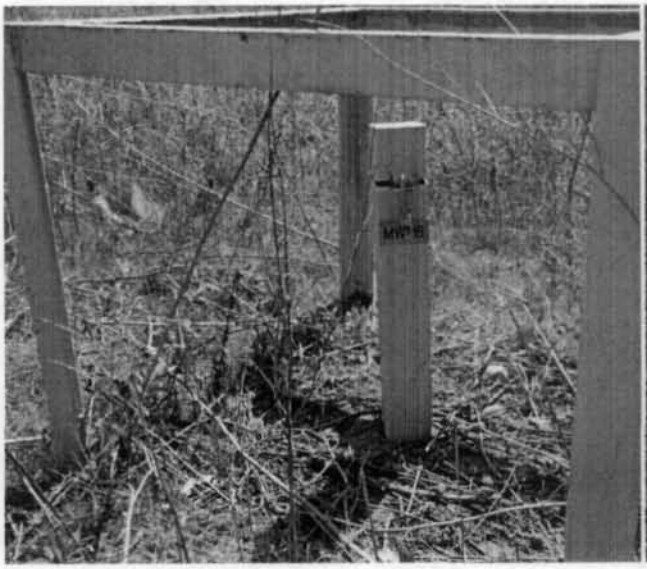


Photo 9. MW-18

Photo 10. MW-19

Photo 11. MW-20, overgrown

Photo 12. MW-21

Monitoring Wells

Photo 13. MW-22

Photo 14. MW-24-90

Photo 15. MW-25-90, identification marker has fallen off

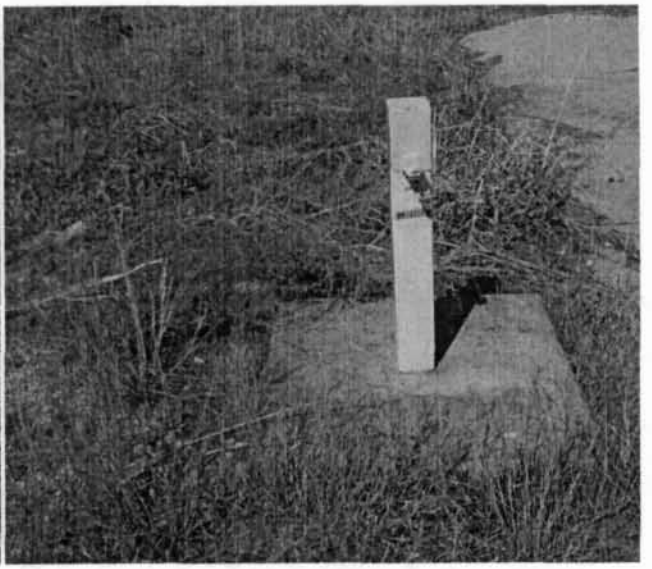


Photo 16. MW-27-90

Monitoring Wells

Photo 17. MW-28-90

Photo 18. MW-28-90, soil has eroded out beneath the well pad.

Photo 19. MW-29-90

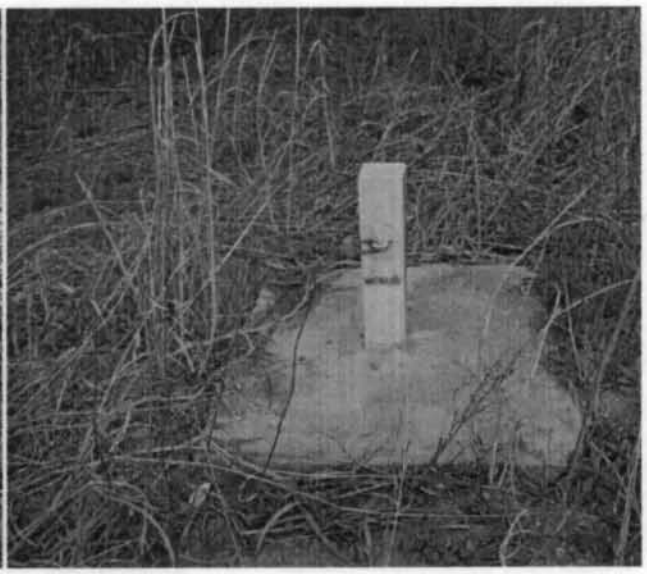


Photo 20. MW-30-90

Monitoring Wells

Photo 21. MW-33-90, well is missing the lock

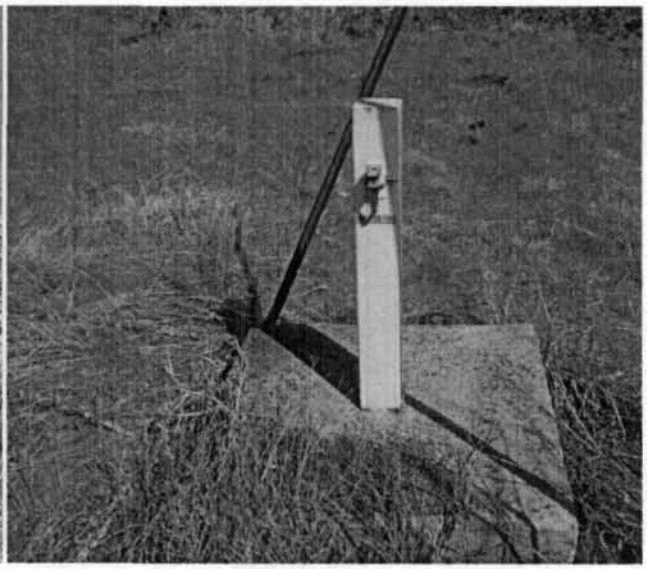


Photo 22. MW-34-90

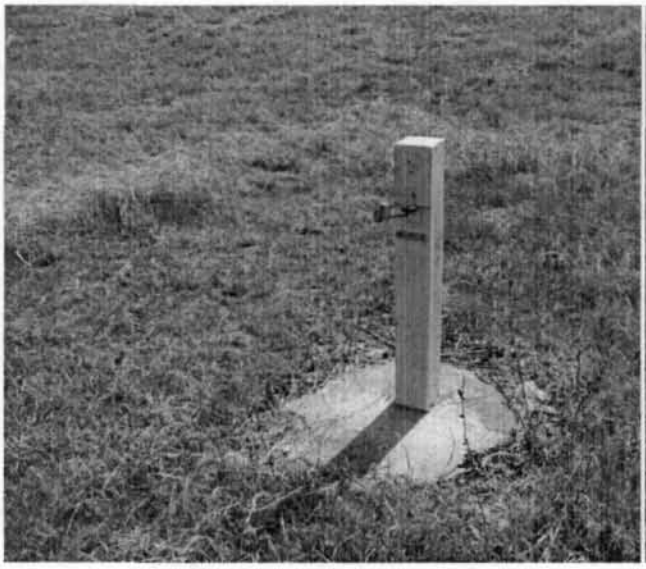


Photo 23. MW-35-90

Photo 24. MW-36-90

Monitoring Wells

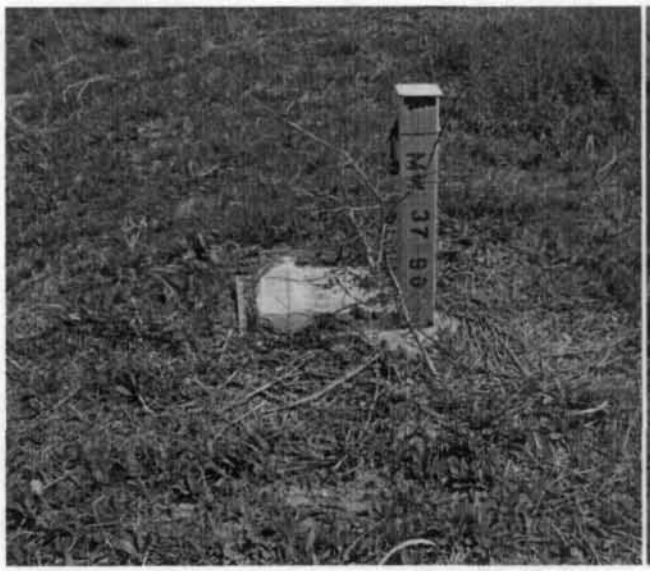


Photo 25. MW-37-90

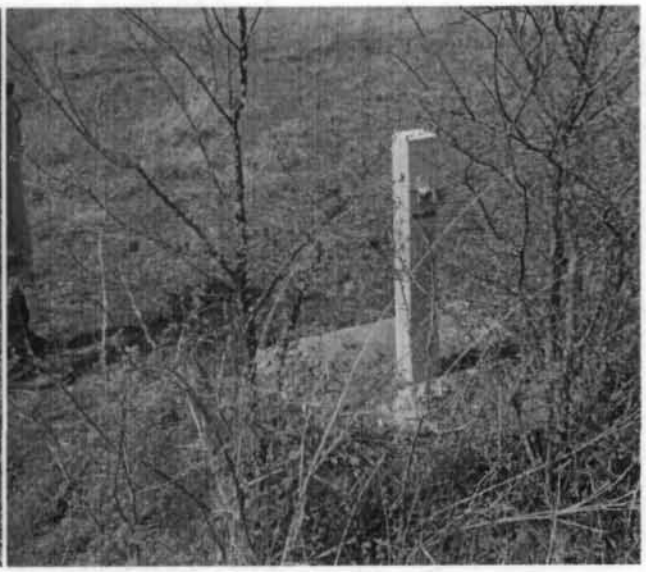


Photo 26. MW-38-90

Leon River Bank (LRB)

Photo 27. ACB at the eastern edge.

Photo 28. Looking west at ACB from the eastern edge. Note the raised concrete blocks.

Photo 29. Looking down slope at ACB along the eastern edge.

Photo 30. Looking west over the stabilized bank and Leon River.

Leon River Bank (LRB)

Photo 31. Clogged CMP outfall in stabilized Leon River bank.

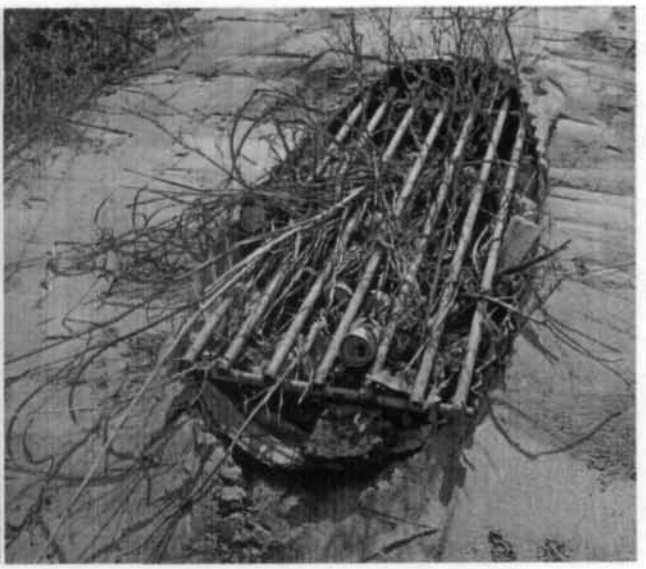


Photo 32. Clogged CMP outfall in stabilized Leon River bank.

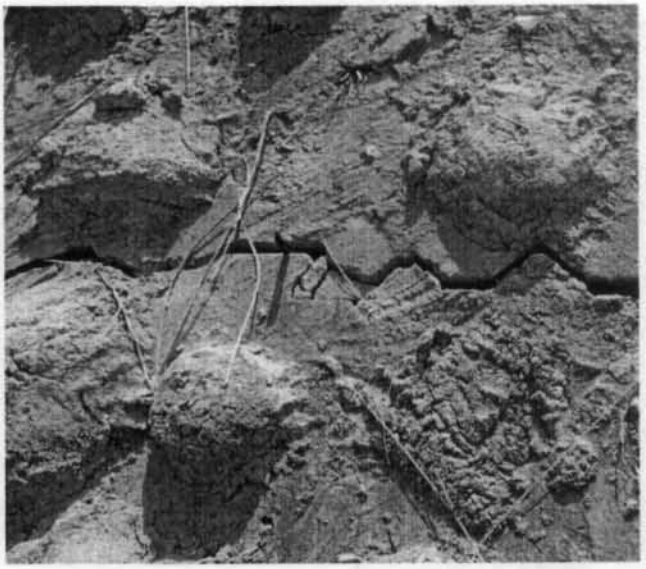


Photo 33. Crack in concrete CMP outfall, the writing pen placed in the crack indicates the depth of the crack.

Photo 34. Crack in concrete CMP outfall.

Leon River Bank

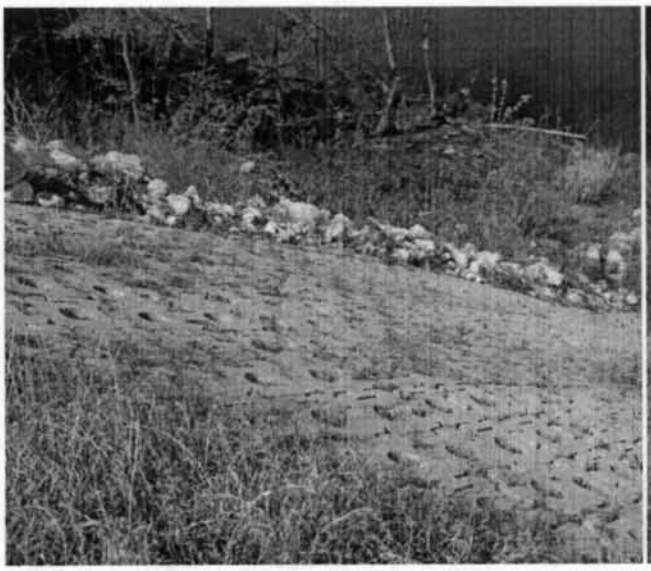


Photo 35. Western edge of the stabilized Leon River bank.

Photo 36. Small trees growing out of the ACB.

Photo 37. Small trees growing out of the ACB.

Photo 38. Small trees growing out of the ACB.

Leon River Bank

Photo 39. Instability and loss of continuity in the ACB at the toe of the LRB.

Photo 40. Instability and loss of continuity in the ACB at the toe of the LRB.

Photo 41. Instability and loss of continuity in the ACB at the toe of the LRB.

Photo 42. Instability and loss of continuity in the ACB at the toe of the LRB.

Evaporation Lagoon Area (EVL)

Photo 43. Looking northeast over the EVL area from between wells MW-21 and MW-22.

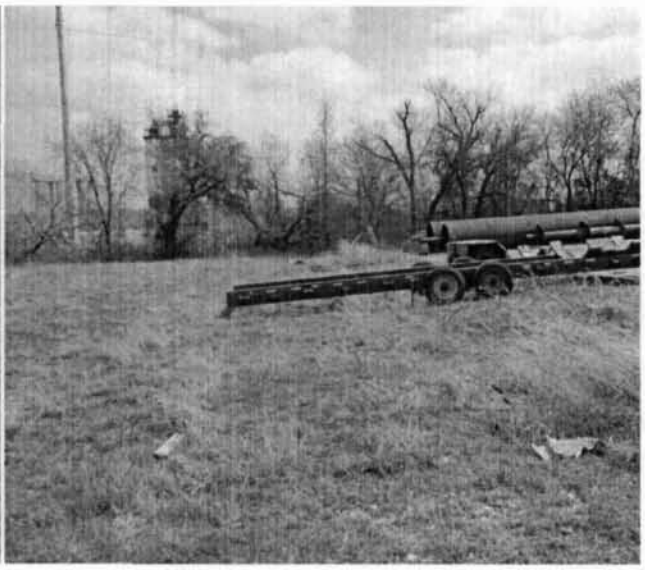


Photo 44. Equipment encroaching on the site on the north side of the paved parking area.

Photo 45. Fallen warning sign adjacent to the paved parking area.

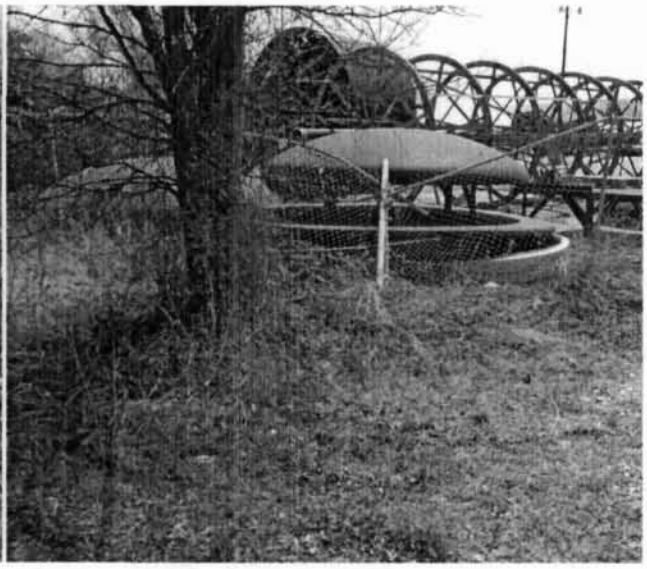


Photo 46. Damaged fence at the northwest corner of the paved parking area.

Evaporation Lagoon Area (EVL)

Photo 47. Wheel ruts and grass cover damage in the area between the paved parking area and the EVL in the background.

Photo 48. Erosion in EVL area about 25 feet west of well MW-35-90.

Photo 49. Good grass cover over EVL cap.

North Shot Pile Area (NSP)

Photo 50. Northern slope of the NSP.

Photo 51. Small cracks in the cover on the top of NSP.

Photo 52. Grass cover on the top of the NSP.

Cemetery Shot Pile Area (CSP)

Photo 53. Grass cover on the top of the CSP.

Photo 54. CMP outfalls at the northern edge of the CSP.

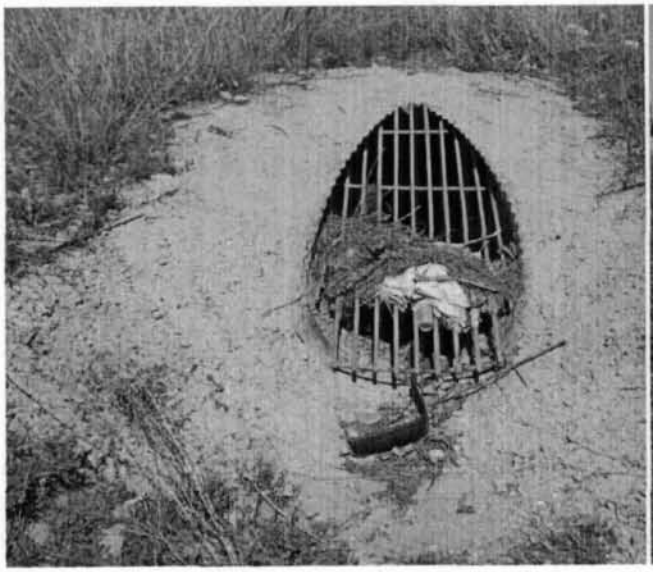


Photo 55. Partially clogged CMP intake at the southern edge of the CSP.

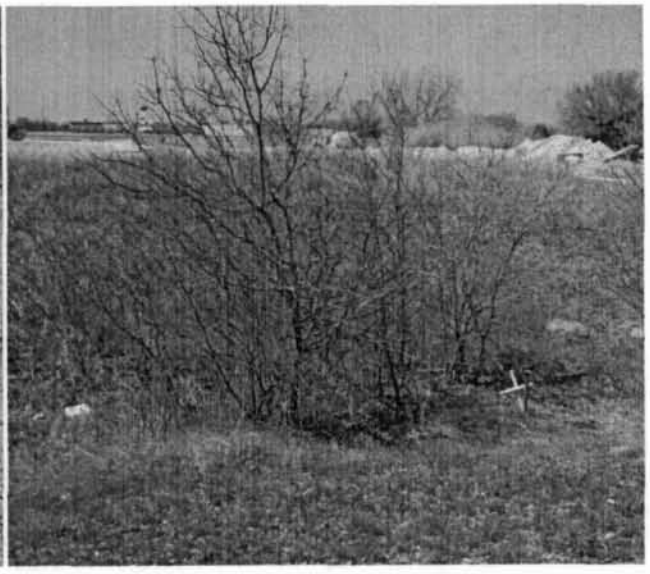


Photo 56. Western edge of the Cemetery and the CSP.

Cemetery Shot Pile Area (CSP)

Photo 57. Area of past encroachment on the western edge of the CSP at the concrete plant.

Containment Cell (CC)

Photo 58. Unpatched cracks.

Photo 59. Patched cracks and asphalt repair area.

Photo 60. Area where water stands near the edge.

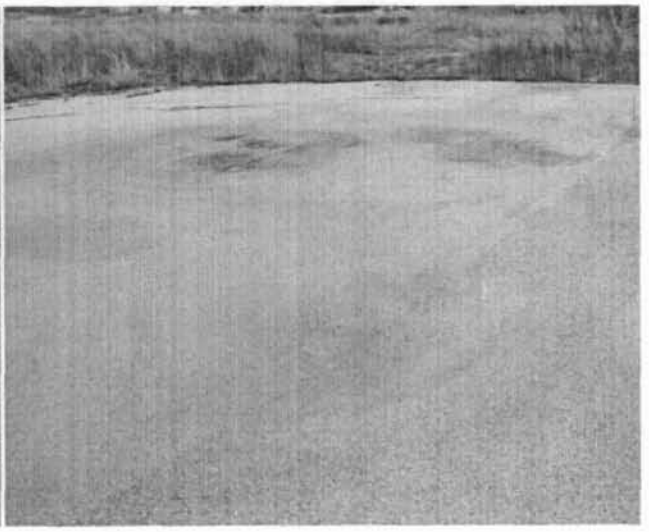


Photo 61. Area where water stands near the edge.

Containment Cell (CC)

Photo 62. Rip rap along the southern edge of the CC.

Photo 63. Rip rap along the southern edge of the CC. The hole in the rip rap indicates that erosion may still be occurring.

Photo 64. Rip rap and repaired cap along the southern edge of the CC.

Photo 65. Rip rap and repaired cap along the southern edge of the CC.

Photo 66. Possible minor erosion at the northern edge of the CC cap.

Photo 67. Possible minor erosion at the northern edge of the CC cap.

Photo 68. Possible minor erosion at the southern edge of the CC cap.

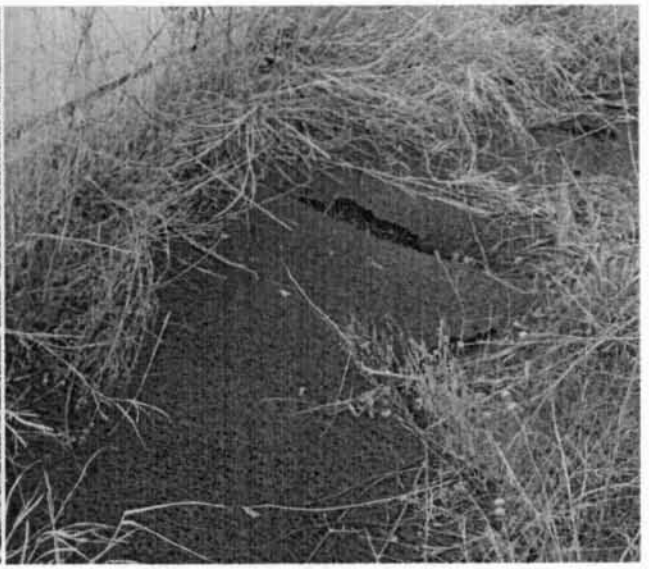


Photo 69. Erosion protection mat has separated from the ground and is several inches above the bottom of the drainage ditch.

South Shot Pile Area (SSP)

Photo 70. SSP waste capped in place.

Photo 71. Detention basin outlet pipe.

Photo 72. Sparse vegetation cover over SSP waste capped in place.

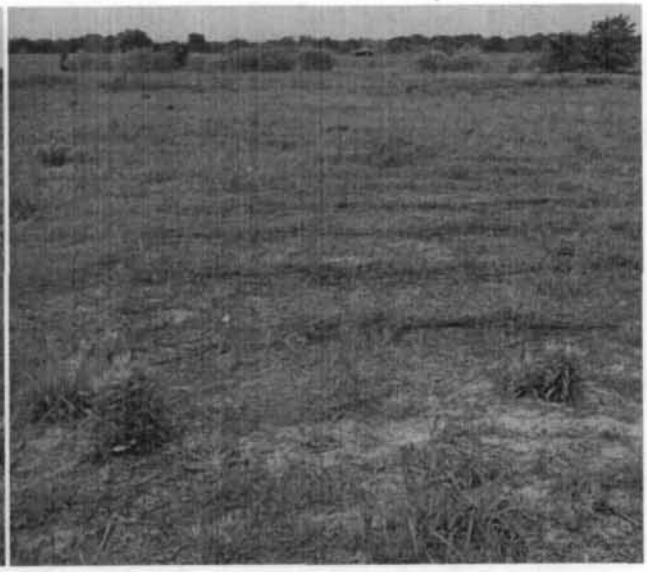


Photo 73. Sparse vegetation cover over SSP waste capped in place.

Possible Slag/Spent Shot at the Site

Photo 74. Possible slag/spent shot found northeast of the EVL.

Photo 75. Possible slag/spent shot found northeast of the EVL.

Photo 76. Possible slag/spent shot found on the ACB.

Photo 77. Possible slag/spent shot found in the cemetery.

Attachment 5

Notices to the Public Regarding the Five-Year Review

ROCKWOOL INDUSTRIES, INC. SUPERFUND SITE
PUBLIC NOTICE
U.S. EPA Region 6 Begins First Five-Year Review of Site Remedy

The U.S. Environmental Protection Agency Region 6 (EPA) is conducting the first five-year review of the remedy for the Rockwool Industries, Inc. Superfund Site in the City of Belton, Bell County, Texas. The review will evaluate if the remedy continues to protect public health and the environment.

The EPA began the remedy at the site in April 2005 and completed the excavation and consolidation of approximately 78,835 cubic yards of waste material and contaminated soil in a Matcon covered containment cell. Unexcavated waste material and contaminated soil at the site were covered by a clay and topsoil cap, and the bank of the Leon River was stabilized using Articulated Concrete Blocks.

The Rockwool Industries site is located in the eastern portion of the City of Belton, Bell County, Texas. The property consists of approximately 100 acres located at 1741 Taylors Valley Road, ¼ mile east of Interstate Highway 35, and ½ mile east of downtown Belton. The Rockwool facility operated as a mineral wool manufacturing plant from mid-1950 until February 1987.

The first five-year review is scheduled to be completed in June 2011. Results of the first five-year review will be made available to the public at the following information repository:

City of Belton City Hall
333 East Avenue A, Belton, TX 76513
(254) 933-5816

Questions concerning the Rockwool Industries, Inc. Superfund Site should be directed to Shawn Ghose M.S., P.E. at (214) 665-6782 or 1-800-533-3508 (toll free).

Legals

Attachment 5. Public Notice Published in the Belton Journal and Proof of Publication.

PUBLISHER'S AFFIDAVIT

STATE OF TEXAS
COUNTY OF BELL

I David Tuma, publisher of the Belton Journal, a newspaper of general circulation printed in Bell County, Texas, do hereby certify that the within notice was printed and published in said newspaper on March 31, 2011.

Publisher

Sworn to and subscribed before me this the 5 day of April, 2011

Notary Public, State of Texas

Attachment 5. Public Notice Published in the Belton Journal and Proof of Publication.