

**EPA/ROD/R06-04/672
2004**

**EPA Superfund
Record of Decision:**

**ROCKWOOL INDUSTRIES INC.
EPA ID: TXD066379645
OU 01
BELL COUNTY, TX
09/30/2004**

FINAL
RECORD OF DECISION

ROCKWOOL INDUSTRIES, INC.
SUPERFUND SITE



REGION 6
September 2004

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DECLARATION

Rockwool Industries, Inc.

FINAL RECORD OF DECISION

SITE NAME AND LOCATION

Rockwool Industries, Inc. TXD06637964
Belton, Bell County, Texas

STATEMENT OF BASIS AND PURPOSE

This decision document presents the final Record of Decision (Final ROD) for the Rockwool Industries, Inc. (RWI) Site (the Site) in Belton, Bell County, Texas. The final remedy is to address human health and environmental risk and was chosen in accordance with the Comprehensive Environmental, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601 et seq. (CERCLA), and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. Part 300 (NCP). This Final ROD is based on the Administrative record file for this Site.

The United States Environmental Protection Agency (EPA) provided the public an opportunity to comment on EPA's Proposed Plan in accordance with the public participation requirements of CERCLA and the NCP. The public comment period began on August 20, 2004 and ended on September 20, 2004. The EPA held a public meeting at the Belton City Hall on August 31, 2004 to provide the community an opportunity to provide verbal and/or written comments on the Proposed Plan. The EPA has reviewed all written and oral comments submitted during the public comment period. Upon review of these comments, the EPA has determined that no changes in the remedy identified in the Proposed Plan are required. The State of Texas concurs with the selected final remedy.

ASSESSMENT OF SITE

Actual or threatened releases of hazardous substances, as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and further defined in Section 302.4 of the NCP, 40 C.F.R. § 302.4, from the RWI Site, if not addressed by implementing the response action selected in the ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF SELECTED REMEDY

The selected remedy is that the soil in areas where the concentration of Antimony exceeds the calculated Preliminary Remediation Goals (PRGs), including the Cemetery Shot Pile, North 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 ground water. After the Cemetery Shot Pile and North Area have been excavated and contoured, the final remedy provides that a clay cover will be installed over the Cemetery Shot Pile and North 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 ground water. The

ground water enters the Leon River through seeps. A culvert and other drainage control features will be installed near the Cemetery Shot Pile 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's. The final 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 Contaminant 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 ground water 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 address soil and ground water.

The final secondary(contingent) remedy is the excavation and recycling of the contaminated soil and Leon River sediments as road base material, if a highway construction project can be located in close vicinity of the Site. At this time the recycling remedy is not cost effective due to long distance the waste, have to be hauled for recycling. Also the long distance transportation increases the short term risk by an accident, spillage or dust blowing off trucks.

STATUTORY DETERMINATIONS

This final remedial action is protective of human health and the environment; complies with those Federal and State requirements that are applicable or relevant and appropriate for this scope action; and is cost effective. Although the final action is not intended to address the statutory mandate for permanence and treatment to the maximum extent practicable, the selected action provides the same level of protection at a lower cost than the recycling remedy which satisfies the preference for treatment.

Because the Selected Remedy provides for cleanup suitable for industrial use but will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

Additional information can be found in the Administrative Record file for this site. Information included in the Decision Summary section of this Record of Decision includes: 1) chemicals of concern (COCs) and their respective concentrations, 2) baseline risks represented by the COCs, 3) cleanup levels established for COCs and the basis for the levels, 4) current and future land and ground water use that will be available at the site as a result of the selected remedy, 5) estimated capital, operation and maintenance costs (O&M), as well as total present worth costs; discount rate; and the number of years over which the remedy costs estimates are projected and 6) decisive factor(s) that led to selecting the remedy.

Samuel Coleman, P. E.
Director
Superfund Division

Date

Acronyms and Abbreviation

7Q2	Seven Day Two Year Flow
ACM	Asbestos Containing Material
AOC	Area of Concern
AST	Above Ground Storage Tank
ASWQS	Applicable Surface Water Quality Standards
BP	Brick Plant
CAP	Corrective Action Plan
CEC	Cation exchange Capacity
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CJI	Cook-Joyce Incorporated
CLP	Contract Laboratory program
COCs	Chemicals of Concern
COPC	Chemical of Potential Concern
CSM	Conceptual Site Model
CSP	Cemetery Shot Pile
CY	Cubic Yards
DHHS	Department of Health and Human Services
DO	Dissolved Oxygen
DQO	Data Quality Objective
DPT	Direct Push Technology
DSP	Dangerfield Slag Pile
ELCR	Excess Lifetime Cancer Risk
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
ESD	Explanation of Significant Differences
FOD	Frequency of Detection
FS	Feasibility Study
FSP	Field Sampling Plan
GEMS	Geologic Exposure Modeling System
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
IRIS	Integrated Risk Information System
LBP	Lead-Based Paint
MB	Maintenance Building
MCL	Maximum Contaminant Level
MSSL	Median Soil Screening Level
NCEA	National Center for Environmental Assessment
NPDES	National Pollution Discharge Elimination System
NSP	North Shot Pile
OU	Operable Unit
ORP	Oxidation Reduction Potential
PCB	Polychlorinated Biphenyl
PRG	Preliminary Remediation Goal
PR/VSI	Preliminary Review and Visual Site Inspection
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RD	Remedial Design

RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RfC	Reference Concentration
RfD	Reference Dose
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Mean Exposure
ROD	Record of Decision
RWI	Rockwool Industries Inc.
SEM	Scanning Electron Microscopic
SF	Slope Factor
SPLP	Synthetic Precipitation Leaching Procedure
SSI	Superfund Site Inspection
SSP	South Shot Pile
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TAL	Target Analyte List
TAWP	Technical Activities Work Plan
TCLP	Toxicity Characteristic Leach Procedure
TCEQ	Texas Natural Resource Conservation Commission
TOC	Total Organic Carbon
TVR	Taylor's Valley Road
TRW	Technical Review Workgroup
TWC	Texas Water Commission
UCL	Upper Confidence Limit
URF	Unit Risk Factor
UTL	Upper Tolerance Limit
VOC	Volatile Organic Compound
WBA	Warehouse Building Area
XRF	X-Ray Fluorescence

DECISION SUMMARY

Site Name: Rockwool Industries, Inc.
Includes Operable Units (OUs) 1 and 2

Site Location: Approximately 100-acre tract of land and industrial area located one quarter mile east of I-35 in Belton, Texas. (see Figure 1).

Site Description: The 100-acre Site is bounded on the north by the Leon River and to the south and south-west by Nolan Creek. The Site is broadly divided into three areas, i.e., the North property, the Central property, and the non-process areas by Taylors Valley Road and FM-93. Rockwool manufactured household insulation material by melting copper and Antimony slag from metallurgical operations. The "rockwool" insulation was produced by blowing the melted material over rotating drums. Waste by-product called shot material was piled on the north and south sides of the site. The shot material ran into the Leon River from the north shot pile and contaminated the portion of the river adjacent to the site (south bank). The spent shot material is the principal threat waste at RWI Site. The Site was placed on the NPL in September 1998.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

SITE HISTORY

The Rockwool Industries Inc.(RWI) facility manufactured mineral wool insulation from the mid-1950s until February 1987. Previous land use is not known. RWI manufactured two types of mineral wool insulation: blow wool and batt wool. Blow wool, which is generally spray blown into attics and other enclosed spaces for thermal insulation, is composed of bulk mineral wool fibers lightly coated with lubricating oil. Batt wool is typically used for wall insulation and consists of mineral wool that is bound with an organic resin (such as tar) and sandwiched into paper.

The mineral wool was manufactured in blast furnaces using raw material such as slags 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 slags 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 North Shot Pile (NSP), the South Shot Pile (SSP), and the Cemetery Shot Pile (CSP). The NSP area began receiving spent shot material waste in the mid-1950s. By 1982, the NSP covered more than three acres and there was no room for further expansion. The northern edge of the NSP was on the southern bank of the Leon River and waste runoff had been detected going into the River. The NSP was reduced to about two acres after waste was hauled to an off-site disposal area. In 1983, a dirt cover was placed over the NSP to reduce fugitive dust and the infiltration of rain. A french drain system was installed along the northern edge of the shot pile to intercept and collect leachate as it flowed horizontally toward the Leon River. This french drain carried the liquid to a concrete sump and the water that collected in the sump was pumped to the lined Evaporation Lagoon.

It is not clear when the SSP began receiving waste; however, beginning in 1984, some of the spent shot material was removed from the SSP and was recycled as an ingredient in brick making. The shot was mixed with cement and Baghouse Dust; it was shaped into bricks and then used as raw material feed for the furnace. An unknown amount of the shot was recycled in this way. It is not known when the CSP began receiving waste.

During the time the site was an active facility, 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. During the preliminary assessment of the Site, incomplete remediation was evident: 1) the ground water recovery system was abandoned and 2) the main facility building was abandoned but still contained office equipment and supplies.

At one time both the boiler blowdown and baghouse wastes were classified as hazardous. With the adoption of Resource Conservation and Recovery Act (RCRA) regulations in May 1980, only the baghouse dust waste was documented to exhibit hazardous characteristics. In August 1980, RWI submitted a Part-A RCRA permit as a generator/disposal facility for hazardous wastes with regard to the baghouse dust wastes. The regulatory history for the Rockwool Site is listed in Table 1.

Table 1
Regulatory Action Chronology
Rockwool Industries, Inc., Belton, TX.

Year	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 #1)
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

Year	Event
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 Investigation Report
1994	Groundwater monitoring & recovery system shut down by RI due to financial difficulties
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 by CH2M HILL
2000	Sampling and Analysis Plan submitted to EPA by CH2M HILL
2001	Remedial Investigation Field Phase completed by CH2M HILL

According to a RCRA Part B permit application, the baghouse 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 Baghouse 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 Baghouse Dust Surface Impoundment (also known as Baghouse 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 ground water recovery system to control and treat ground water 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 Baghouse Dust Surface Impoundment and the on-site general plant refuse landfill was not completed. The ground water recovery system was abandoned and iron shot piles remained on site. RWI shut down the ground water 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.

ENFORCEMENT ACTIVITIES

The Site is currently divided into three parcels of land. RWI formerly owned all three parcels. RWI also owned and operated the facility responsible for creating the contamination at the Site. RWI is defunct. Another defunct company, CTMC, Inc. (CMTC), purchased approximately 83 acres of the property in a tax sale in 1997. CMTC submitted documents to the State of Texas seeking reimbursement for various expenditures associated with "post-closure care procedures" and "cleanup of the site." The largest parcel, consisting of just over 80 acres, is currently owned by Nev-Tex Group, Inc. (Nev-Tex), a Nevada corporation. Nev-Tex appears to be a shell created by unidentified persons.

During the RI/FS, EPA obtained access to the southern tract, owned by Nev-Tex, from Mr. Wayne McMiniment, who was president of Nev-Tex at the time. The EPA obtained a court order to collect samples for the RI/FS at the northern 14-acre tract, owned by the defunct RWI. Since there was no bid on the northern tract in the 1997 tax sale, the property reverted back to the defunct RWI, thus necessitating a court order to collect data and samples from the 14-acre tract adjoining the Leon river. In March 2004 the City of Belton assumed ownership of the northern 14 acres in a tax sale. The third parcel, about 2.9 acres in size, is currently owned by Jones-Bell, L.L.C. ("Jones-Bell"), a Texas limited liability corporation. Jones-Bell purchased the property from CTMC in March 2000, after the start of the RI/FS.

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.

COMMUNITY PARTICIPATION

As part of the Community Involvement Plan, EPA community relations staff conducted door-to-door interviews and held meetings with local Belton residents, public officials, community leaders and business people. The community interviews provided interested citizens with opportunities to ask questions about the Site, voice their opinions and concerns about Site activities and issues, and learn more about the Superfund program. These interviews were held in September 1999. The following summarizes the results of these community interviews.

Community Interviews

All interviewees were aware of the existence of the Site and most knew of its location and general background and history. Many, however, were unaware that the Site is a Superfund Site and that it has been placed on the NPL. Interviewees did voice eagerness to see contamination problems at the Site resolved, if EPA determines that Site contaminants pose a risk to public health or the environment. The Site-related concerns most often expressed by interviewees were:

- The need to restore the Site to tax-generating status. City officials and community members both addressed the need to clean up the Site so that the property may be more beneficial to the community.
- The potential contamination of the fish in the Leon River. The mayor wanted confirmation that the fish in the Leon River were not contaminated as a result of the Site and that the fish caught in these waters are safe and edible .

Many informational meetings were held in Belton during the Site investigations conducted between late 1999 and August 2002. In September 2003, the City of Belton received a \$50,000 Superfund Redevelopment study grant.

Public participation activities for the Site have been satisfied, as required in CERCLA Section 113(k), 42 U.S.C. § 9613(k), and CERCLA Section 117, 42 U.S.C. § 9617. The Proposed Plan for the Final ROD was released to the public on August 20, 2004. The notice of availability of the Proposed Plan and the Administrative Record file for the remedial action was published in the Belton Journal on August 19, 2004. The public comment period was from August 20, 2004 to September 18, 2004. A public meeting was held at the Belton City Hall on August 31, 2004. A court recorder was present to record oral comments.

The EPA received one written comment during the public comment period, and no adverse comments were made on the selected remedy during the public meeting. The only written comment was from the City of Belton and related to the location of the containment cell relative to FM 93. EPA has addressed the City's concern by finding some alternative locations for the containment cell. Other questions related to what happens to the land after cleanup and whether somebody can start a business before the cleanup is completed. A responsiveness summary of the public meeting is attached.

Documents and information upon which EPA relied in recommending the remedy, is located in the Administrative record. The Administrative Record includes the text and appendices A to R of the RI/FS report, and the Prefinal (90%) Design Report for the Remedial Design for the Interim ROD. The Administrative record contains many other documents supporting the remedy. A major part of the Administrative Record is the RI/FS report which includes the data evaluation report, the human health risk assessment report and the feasibility study of the remedial alternatives and the 90% Remedial Design..

The Administrative Record was made available to the public by placing a copy of all the material at the following repositories:

- Belton City Hall, 333 Water Street, Belton, Texas 76513
- U.S. EPA Region 6, Seventh Floor Reception Area, 1445 Ross Avenue, Ste 12D13, Dallas, Texas 75202-2733
- Texas Commission on Environmental Quality, 12100 Park 35 Circle, Building E, 1st Floor, Austin, Texas 78753.

SCOPE AND ROLE OF OPERABLE UNITS

The inactive RWI National Priorities List (NPL) Site (the Site), at 1741 Taylors Valley Road, includes approximately 100 acres (zoned heavy industrial) and lies one mile east of downtown Belton, Bell County, Texas (see Figure 1). The Site consists of three main areas. The first area is the 14-acre area north of the Taylors Valley Road, denoted as the North Property and adjoining Cemetery. The second area is south of Taylors Valley Road and contains the Rockwool production building. This area is designated as the Central Property and extends to FM 93. The third area is south of FM 93 and is designated as the Non-Process area. Figure 2 presents a layout of these areas and the overall Site. The primary waste types at the Site include spent iron shot and baghouse dust. Secondary waste types include boiler blowdown water, stormwater runoff, recovered ground water, and bricks.

Forty-seven (47) acres were used as an industrial facility; 14-acres included an evaporation lagoon; and 40-acres were used as pasture. The Site is bordered to the north by the Leon River and is twice bisected from east to west by Taylors Valley Road and FM 93 (see Figure 2). These roads divide the Site into three distinct areas that include the 14 acres north of Taylors Valley Road including the CSP and the NSP, the Make-up Water Pond, the water treatment building, and the Evaporation Lagoon. The middle portion of the Site, which consists of 47 acres between Taylors Valley Road and FM 93, is where most of the facility operations took place. This area includes the Baghouse Dust Surface Impoundment, the SSP, the Dangerfield Slag Pile (DSP), the Boiler Blowdown Pond, the maintenance building/garage, and the former Kiln and Brick Plant.

The local taxing district put the Rockwool property up for sale in 1997 due to unpaid taxes. The southern 83 acres (Central Property and the Non Process area) was purchased by CTMC, Inc. There was no bid on the North Property, thus it reverted back to the defunct RWI. In March 2000, Jones-Bell, L.L.C. purchased the 2.9-acre triangular lot containing the RWI main production building and warehouses from CTMC. Currently the 80-acre parcel in the Central Property area is owned by Nev-Tex Group, Inc., a Nevada corporation. In March 2004 the City of Belton assumed the title for the northern 14 acres, in a tax sale. Because of this varied ownership, EPA decided to define the triangular 2.9-acre lot as Operating Unit 2 (OU2) (see Figure 1). The rest of the area (the North area, the Geer-Cemetery area and the Central Property

and Non-Process area) was defined as Operating Unit 1 (OU1). Operable Unit 2, containing the process building and the warehouse, is likely to require minimal remediation due to contaminated soil. Contaminated soil is the major problem at the site. Most of the contamination at the Site occurs in the waste material and soil. The remedy addresses essentially the North Property and the Central Property, where Antimony in soil is the primary risk. Results from the Remedial Investigation have shown that the majority of remedial work will consist of excavating soil above PRGs from the Geer-Cemetery property, the North Property and the Central Property. Shot material which has washed into the Leon River from the North Shot Pile will be dredged and consolidated along with other contaminated soil in an on site containment cell located in the Central Property.

The excavation of waste material and soil greater than the PRGs and the dredging of the sediments from the Leon River will mitigate risks to human health. Concurrent with the Remedial Design for the Interim ROD, the ecological risk assessment was completed. The risks were evaluated by taking samples of sediments in the Leon River where previous sampling had indicated high values of COCs in the sediments. A bioassay was conducted with the sediment samples. The bioassay indicated the sediments to be non toxic to biota. Thus no additional remedial measures were necessary to address the ecological risks. Thus the remedy proposed in the Interim ROD would have addressed both human health and ecological risks. While current ecological risks appear minimal, the EPA decided to dredge Leon River sediment adjacent to the Site to check fish tissue values during the First Five-Year Review performed at the Site.

This concurrent sampling of the Leon River sediments along the Site while completing the design for the interim ROD saved time and funding. That is to say, while the remaining ecological risk assessment was being completed (which is a lengthy process), actions to address human health risks were designed. This method was proven to be right, as EPA found no additional remedial measures were needed to address the ecological risks.

SITE CHARACTERIZATION

Site characterization was discussed in detail in the Interim ROD (*Interim Record of Decision, Rockwool Superfund Site, September 2003*). The risks defined in the Interim ROD were based on assessing the human health exposure and the screening-level ecological risks. The risk characterization in this document remains the same as the Interim ROD except the baseline ecological risk evaluation has now been completed. Ecological risks were characterized further by conducting sediment bioassays and sediment chemistry analysis during the Remedial Design (RD) phase. The following section is extracted from the Interim ROD and repeated for completeness:

EPA completed its preliminary assessment of the Site in December 1995, and a Site Screening Investigation in October 1996. The site was proposed to the National Priorities List (NPL) on March 6, 1998, and was placed on the List on September 29, 1998. EPA sent notice letters to Potentially Responsible Parties (PRPs) to perform the Remedial Investigation and Feasibility Studies (RI/FS). On receiving no response from the PRPs, EPA proceeded with the RI/FS as a Fund Lead study. EPA began its formal RI/FS in September 1998. The RI field work was essentially completed in August 2001. However a second round of fish sampling was conducted in July 2002 to establish background levels of chemicals of concern (COCs) in fish tissue. In addition to these efforts, the Texas Department of Health (TDH) evaluated the environmental information available for the site.

A brief review of its findings are presented below.

TDH Review Findings

The TDH concluded from a review of the 1996 Site Investigation Report that potential exposure to contaminants through the food chain is considered to be an indeterminate public health hazard. Although available data do not indicate that people are being, or have been, exposed to levels of contamination that would be expected to cause adverse health effects, data are not available for all environmental media to which people may be exposed. Selenium, which is known to bio-accumulate in fish, was detected at high concentrations in ground water from the NSP and at low concentrations in sediment both from the Leon River and Nolan Creek. Surface water data and fish data from the Leon River were not available. They recommended that fish from the Leon River and Nolan Creek be collected and analyzed.

EPA's RI Findings

EPA's RI is the most comprehensive investigation conducted to date. It involved collecting and analyzing samples of soil, waste, surface water, sediment and ground water over a four month (April-August 2001 and June-July 2002) period. The results of this investigation are published in the RI/FS report (CH2M HILL, April 2003) and are summarized below. *EPA's investigation did not detect selenium at levels which would dictate selenium being a chemical of potential concern for human health.*

Geology and Hydrogeology

The site overlies Quaternary alluvium and terrace deposits associated with the Leon River. The terrace deposits generally lie north of FM 93 and consist of limestone gravels, 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 uppermost water-bearing zone occurs at depths between 20 and 35 feet within the coarse grain deposits of the Quaternary alluvium and terrace deposits, and within the weathered 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. Ground water north of Taylors Valley Road generally flows north-northeast, discharging through seeps to the Leon River. There is evidence of ground water mounding under the evaporation lagoon suggesting that seepage from the lagoon is recharging the perched zone. On the south side of Taylors Valley Road, it flows to the south and southeast discharging through seeps to Nolan Creek. It flows at an estimated velocity of 0.9 feet per day.

There are 7 domestic, 5 industrial, 3 general use (irrigation), wells within 1 mile of the Site. 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 (TCEQ, 1996b). Several of these wells are screened in the perched zone and several are screened in the deeper zone. Page 4-4 of the Rockwool RI/FS Report presents additional details of these wells. 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 shaley limestone which is part of the Georgetown Formation. The water analysis showed no resemblance to the shallow perched ground-water, 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.

In summary, 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 in the areas down-gradient of the site is unlikely.

Surface Water Hydrology

The primary surface water features in the vicinity of the site are the Leon River and Nolan Creek. The Leon River discharge volume, downstream in Belton, is recorded continuously by the USGS with mean flows ranging from 20 to 600 cubic feet per second (cfs). Peak flows of 3,000 cfs were observed in late March 2001. The designated water uses of the river are contact recreation, high-quality aquatic habitat, and public water supply. Recreational fishing is known to occur but swimming is unlikely because of unsafe conditions such as high flow rates, unclear water, presence of high brush along the river banks, and steep banks limiting access.

Surface water flow volumes in Nolan Creek are not currently monitored. A harmonic mean discharge of 29 cfs has been reported. The TNRCC (now TCEQ) has designated the creek's uses as non-contact recreation, high-quality aquatic habitat, and public water supply.

Ground water

Antimony, arsenic, and lead in residual waste remaining in the former baghouse dust impoundment represents the primary ground water contaminant source. Analytical results for samples collected in the vicinity of the NSP, SSP and evaporation lagoon areas also indicate 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.

The ground water seep results show that arsenic and antimony contaminated ground water is currently seeping into the Leon River and Nolan Creek at concentrations greater than surface water quality standards. However, based on the ground water seepage rates and surface water flow volumes observed, antimony and arsenic concentrations attain equilibrium river concentrations within 10 to 100 feet from the point of entry into the Leon River. This has been verified by mass balance calculations.

Surface Water and Sediment

Leon River- Surface water samples collected from 24 locations in the Leon River 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, is also known to contain significant amounts of waste material presently entering the river.

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 ground water 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 Central Processing (CP) 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 ground water; 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 show no increase in those areas downstream of the ground water seep sites.

Waste Material Characteristics and Volumes

The NSP, SSP and DSP represent the three primary non-hazardous SWMUs remaining at the Site. A third shot pile, identified as the CSP straddles the property line between the adjacent cemetery and adjoining private property and within a drainage easement. This pile, and waste material near the evaporation lagoon, were not identified in historical Site documents and may represent overflow from the NSP, or material removed when the NSP was reduced in size in 1987. The estimated waste area and volumes are summarized in Table 2 below. Analysis of samples collected from the primary waste material piles did not reveal the presence of RCRA hazardous characteristics. The analyses indicate 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 reveals that Antimony in the waste materials has higher leachability than Arsenic and lead.

**Table 2
Waste Impact Area and Volume Estimates
Rockwool Industries, Inc., Belton, TX.**

Waste Unit	Surface Impacted Area (acres)	Estimated Waste Impacted Area (acres)	Max. Waste Thickness Observed (feet)	Estimated Waste Volume (cubic yards)
Cemetery Shot Pile	0.4	5	17.5	30,000
North Shot Pile	2	4	22	25,000
Evap. Lagoon Waste	0	2	10.5	6,000
South Shot Pile	4.6	15	14	25,000
Dangerfield Slag Pile	0.3	0.3	8	2,500
Brick	0.3	0.3	3	150 to 200

Biota

Leon River- Analysis of the 61 fish samples (26 top feeders and 35 bottom feeders) collected from the Leon River at locations adjacent to and down gradient of the Site revealed the presence of many of the same metals detected in on-site soil and ground water (see Figure 3 and Figure 4). Adverse impact associated with the Site can be concluded for fish because Antimony was detected at a high frequency of detection (80.3%) at concentrations significantly higher than background. Nolan Creek-Analysis of 10 fish samples (5 top feeders and 5 bottom feeders) collected from Nolan Creek at locations adjacent to the Site did not reveal the presence of soil COCs. Adverse impacts associated with the Site are not likely because elevated soil COCs were not identified in the fish samples.

On-site Buildings

The on-site buildings are generally in poor condition. Any building constructed of cinder block/brick is likely a structural liability. The large cracks and differentiated foundations/slabs do not allow for timely/cost effective restoration. Steel beam constructed buildings can be restored and they appear to be structurally sound. This will be addressed when the Site is redeveloped for industrial use.

CURRENT AND FUTURE SITE RESOURCE USES

Most of the Site is abandoned. The 3-acre processing building called OU2 is currently occupied and used for light industrial manufacturing. The reasonable future land use is industrial/commercial. The Site is zoned for heavy industrial use. It is located in an area with projected low growth, and is situated between two major roadways. Future residential use of the Site is unlikely, and the City of Belton plans to restore the Site into an industrial area.

The uppermost water bearing zone (see Figure 5) underlying the area occurs at a depth of 20 to 35 feet within the Quaternary alluvium. The water bearing zone occurs in the top 3 feet of the underlying Georgetown formation (fractured limestone at the top). This water bearing zone has very low saturation, and it is not uncommon for monitor wells in this interval to go dry while sampling. While sampling for the RI/FS in 2001, four out of the nine hydro punch samples failed to extract water from this saturated zone in the alluvium. Because of the low and unreliable yield, this interval in the alluvium can best be described as perched water bearing zone. Thus, it is unlikely that the perched zone will be the source of future drinking, irrigation or industrial use water. Locally, the drinking water aquifer is in the Hosston Member of Travis Peak Formation

Figure 4- Distribution of Antimony in Leon River Top Feeder Fish

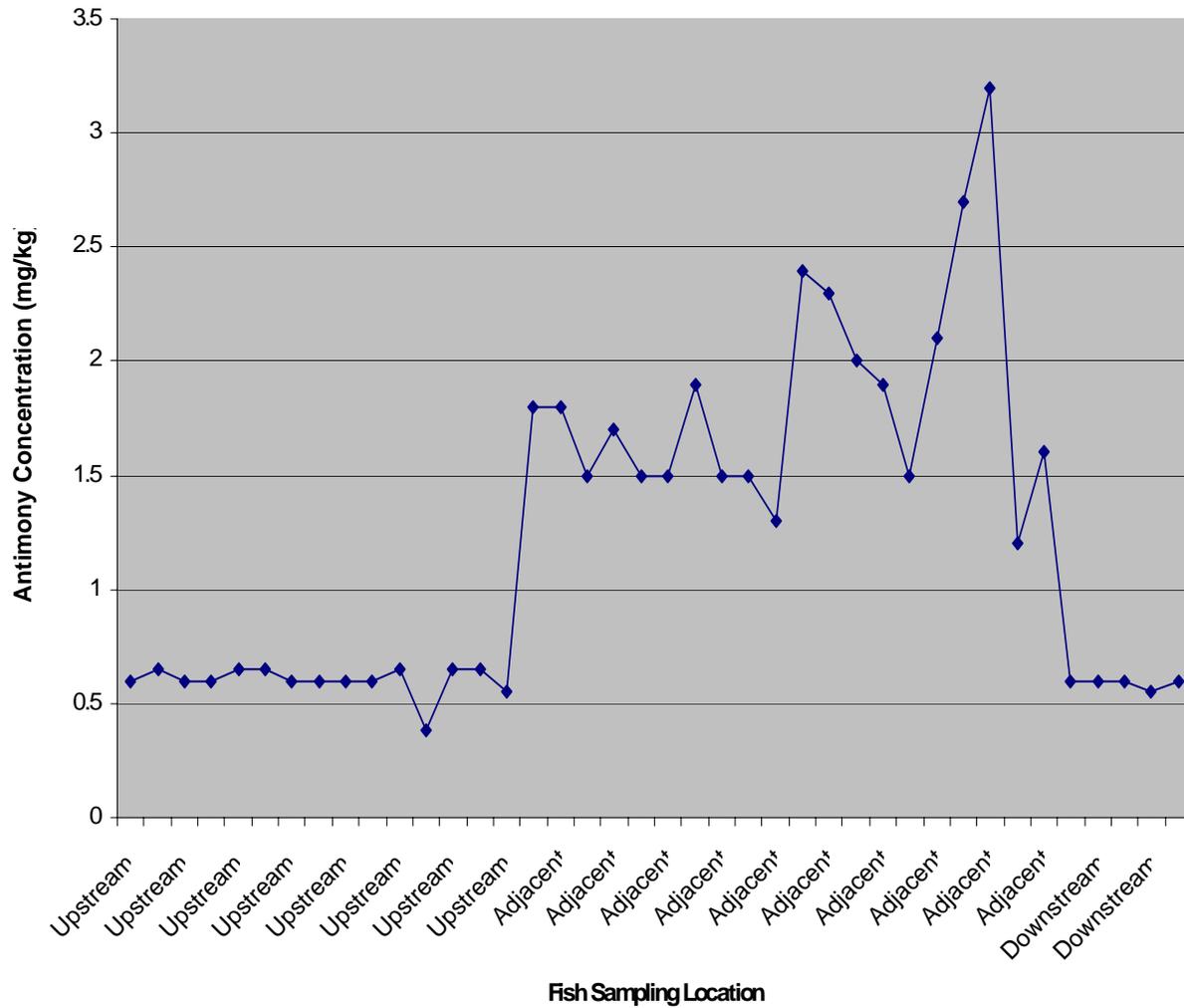
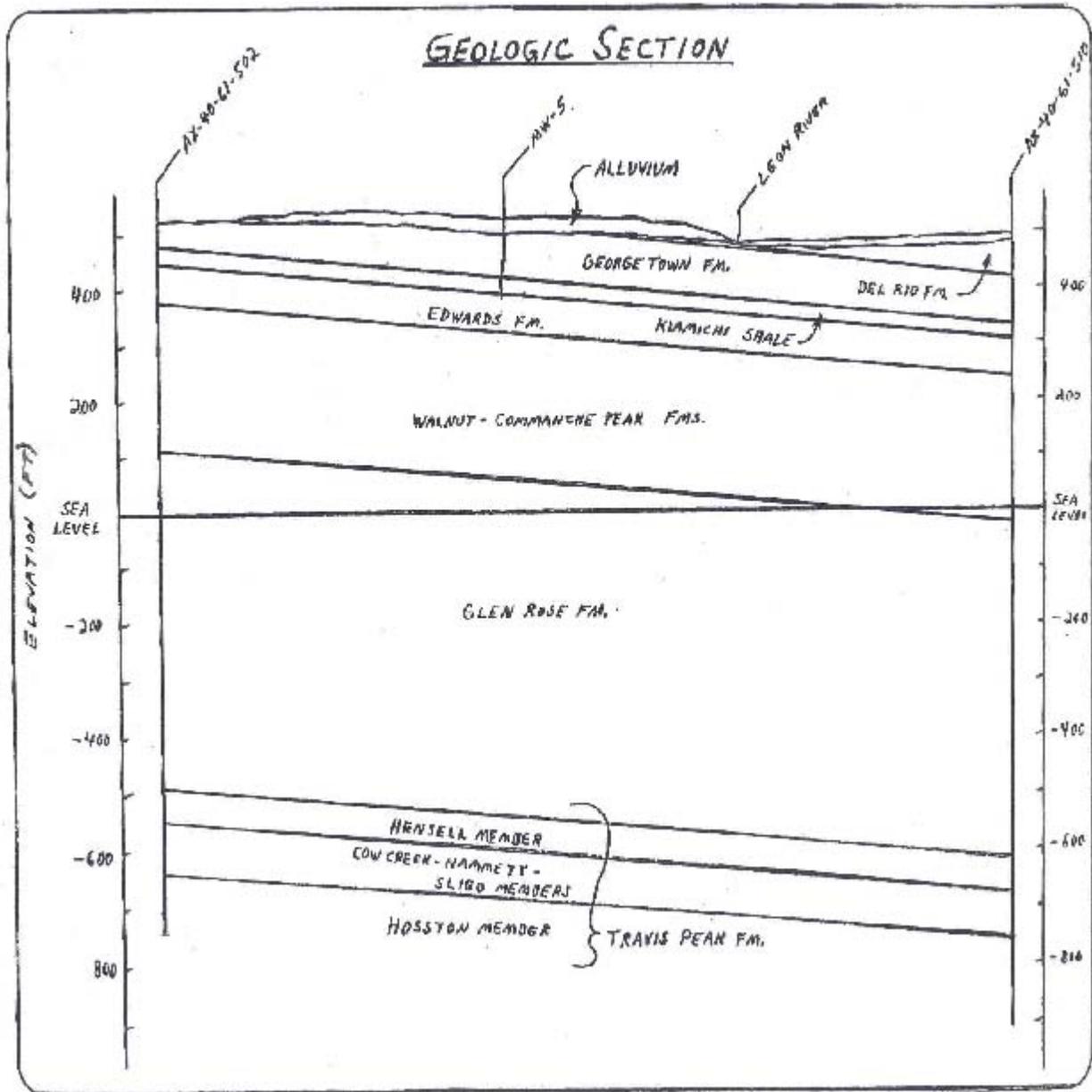


Figure 5
Geologic Cross-Section
Rockwool Industries, Inc., Belton, TX.



about 1000 feet below the Site. Thus, it not likely that the contaminated perched aquifer can contaminate the drinking water aquifer. From a review of about 15 shallow wells surrounding the Site, there is no evidence that the perched water bearing zone is connected hydraulically to any off-site water bearing units. The EPA has awarded a Superfund Redevelopment grant to the City of Belton to rehabilitate the area to locate industrial/commercial entities.

RISKS ADDRESSED BY FINAL ACTION

This section summarizes the findings from the human health risk assessment (HHRA). The risks are expressed as both excess lifetime cancer risk (for carcinogenic compounds) and as hazard index values for all other non-carcinogenic risks. In other words, arsenic risk values are expressed in relation to the EPA target cancer risk range of 1×10^{-4} to 1×10^{-6} , while the non-cancer risks are expressed in relation to EPA's hazard index (HI) or hazard quotient (HQ) of 1.

The RI/FS Report and the Interim ROD provide a detailed discussion of the human health risk assessment sample collection approach and results. The risk assessment findings are presented in Table 3 below. Human health Preliminary Remediation Goals (PRGs) were developed as concentrations in soil that are protective of human health at the target cancer risk ranges and that result in HIs or HQs below 1.0.

Risks Addressed by the Interim Action (Interim ROD)

The Site contains shot material, waste and contaminated soil resulting from previous industrial processes. There are several large shot piles, and shot is scattered over the surface soil. 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 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 ground water 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. 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 (1×10^{-4}), so risks due to carcinogenic contaminants do not need to be addressed. However, the industrial worker's non-cancer hazard from direct contact with Antimony in soil/waste from OU2 and the Central Property are 2.1 and 5.1, respectively, which exceed unity. Unity is defined as 1. Also, 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.

Table 3
Summary of Estimated Health Risks (RME scenario)
Rockwool Industries, Inc.

Exposure Scenario	Cancer Risk		Non-carcinogenic Risk	
	<i>Risk Level Chemical</i> ¹		Target Organ HI>1 Chemical ²	
Industrial Worker (OU 2)				
Soil	2 x 10 ⁻⁵	Arsenic	2 (Circulatory)	Antimony
Industrial Worker (Geer Property)				
Soil	3 x 10 ⁻⁵	Arsenic	--	None
Industrial Worker (North Property)				
Soil	1 x 10 ⁻⁵	Arsenic	--	None
Industrial Worker (Central Property)				
Soil	5 x 10 ⁻⁵	Arsenic	5 (Circulatory)	Antimony
Industrial Worker (Non-Process Area)				
Soil	2 x 10 ⁻⁶	Arsenic	--	None
Adult Fisher (Leon River)				
Surface Water Fish	-- 6 x 10 ⁻⁵	None Arsenic	-- 4 (Circulatory) 2 (Immune) 5 (Circulatory)	None Antimony <i>Mercury</i> <i>Thallium</i>
Adult Fisher (Nolan Creek)				
Fish	--	None	14 (Kidney) 8 (Circulatory)	<i>Cadmium</i> <i>Thallium</i>
Adult Swimmer (Nolan Creek)	--	None	-----	None

1- Chemical contributes to exposure pathway risk > 1x10⁻⁶

2- Chemical with Hazard Quotient > 1

Bold/Italicized chemicals are within background concentrations

The interim action, therefore, will address several issues:

- * Visible waste material (shot) on the Site will be excavated and removed.
- * The impact of shot/waste and contaminated soil on shallow ground water and surface water will be abated.
- * The movement of shot into the Leon River through erosion will be halted.
- * The effects of leachate and shot on fish in the Leon River will be abated.

As a result, non-carcinogenic health hazards to the current fisher and the future industrial worker from Antimony will be reduced.

Residual Ecological Risks addressed in the Final Action (Final ROD)

During the Interim ROD, EPA completed the first three steps in an eight step process to assess ecological risks. Due to economies in time and to enhance the process, EPA decided to wait to complete the balance of the ecological risk assessment in the remedial design phase of the project. The rationale behind this work phasing was that most of the identified terrestrial risks coincide with human health risk, which will be resolved by the remedial actions recommended in the Interim ROD. The remaining residual ecological risks are addressed in this Final ROD. Therefore, phasing the work allowed the ecological risk assessment to be completed after the human health risks were identified and resolved with the ecological risks being assessed on the residual waste.

The screening level risk assessment (Step 1 and Step 2 of process) identified complete pathways and potential adverse effects from Site related source materials to potential ecological receptors. Based on the identified path forward, an interim ecological risk report was generated which contained the major elements of the baseline problem formulation (BPF).

The results of the BPF were as follows:

- There is no risk to upper trophic level wildlife (i.e., carnivorous and piscivorous wildlife higher on the food chain) from Site related chemicals based on food chain (desk-top) modeling.
- Risk to lower trophic level organisms in soil does exist for several metals (Hazard Quotients [HQs] between 1 and 5) based on comparing measured soil concentrations to screening benchmarks. These risks need to be addressed through further investigation or by eliminating the pathway of exposure to these organisms (i.e. remove or cover the waste).
- There is risk from metals to aquatic and benthic organisms in Leon River and Nolan Creek at some locations, based on a comparison of measured concentrations to screening benchmark values. Further investigation was recommended to substantiate or refute these risks.

The proposed remedial measures for human health (i.e., excavation of soil with concentrations above PRGs and covering the excavated parts with 12 inches of clay) will also address the risks to terrestrial organisms identified by the first two items above. The area of the site with terrestrial ecological risk would be similar in location and size to that being remediated for human health risks. Thus, the proposed remedy would eliminate the complete exposure pathway of ecological organisms to Site related wastes.

Leon River Investigation

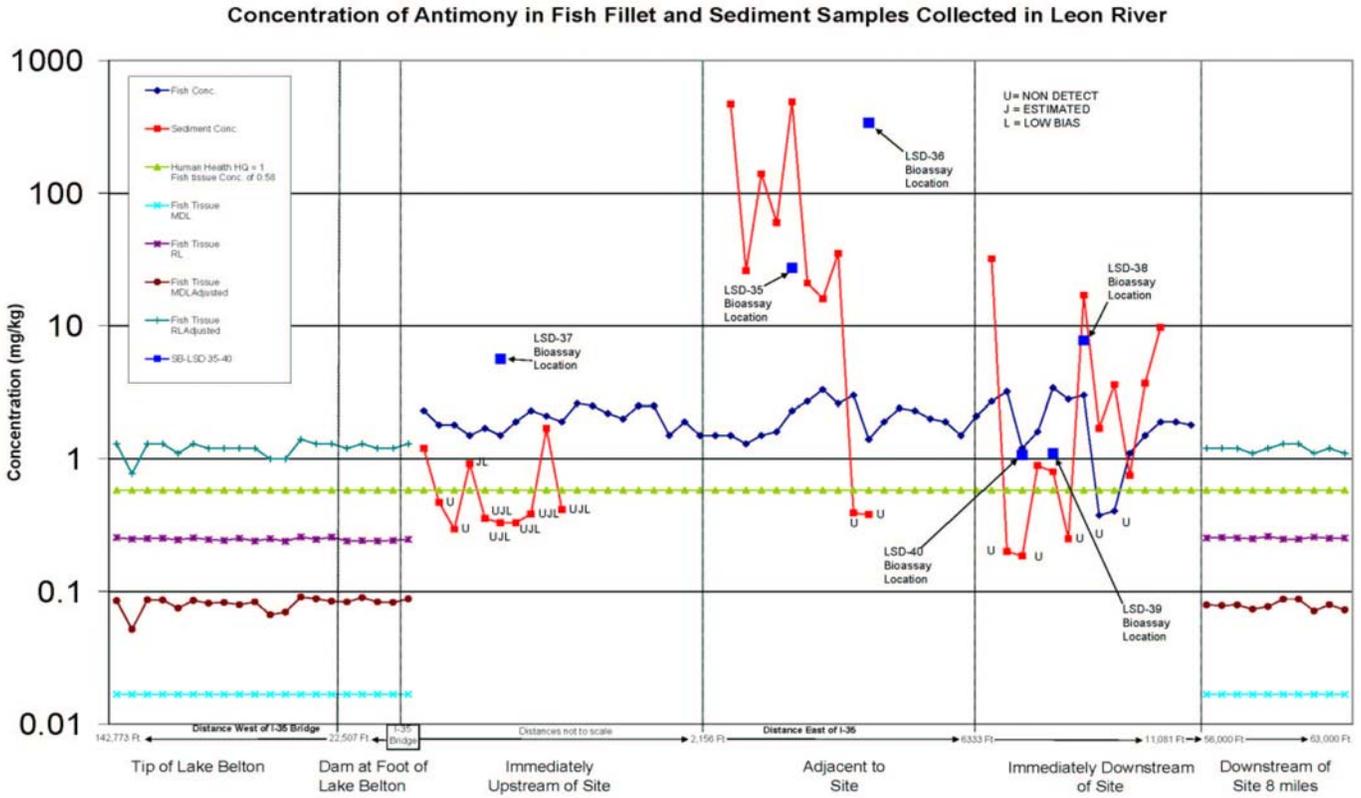
Sediment samples were collected at six locations in the Leon River on December 11, 2003. One sample was collected upstream of the site, two adjacent to the site, and three downstream of the site. All samples were collected from areas previously sampled during the RI, in locations where the concentration of at least one waste related compound exceeds ecological screening values. The sediment samples from this sampling event were analyzed for the concentration of six metals identified as exceeding ecological screening values. A dilution series *Hyalella azteca* bioassay was also conducted on the sediment from all six locations using standard EPA protocols. The dilution series consisted of introducing a known number of organisms into sediment that ranged from 100 percent Leon River sediment to as low as 6.25 percent Leon River sediment. The results of these bioassay tests indicate that there is no toxicity, even in the 100 percent sediment test. There was no significant difference between the survival and growth

of organisms exposed to sediment collected adjacent to and downstream of the Site from the results for those organisms exposed to laboratory controls or those exposed to a samples collected upstream of the Site.

These results mean that the sediment in the Leon River is not toxic to sensitive ecological species. Therefore, development of removal standards (PRGs) for protection of ecological organisms is not needed because any resulting PRG would be equal to the highest measured metals concentration from the data set and there are no known areas that exceed those values. While the sediments are not toxic to ecological receptors, the bioassay results and field observations suggest that benthic organisms are alive and acting as a food source to larger carnivorous fish potentially consumed by human anglers. Thus, benthic organisms could be accumulating wastes from the Site and transferring them to larger fish. The human health risk to adult anglers from antimony (in sediment) which accumulates in fish tissue is the only remaining risk within the sediment exposure pathway. Data for the accumulation of antimony in benthic organisms in the open literature is sparse, but suggests low accumulation for fish. However, the accumulation in fish in Leon River is apparent from the fish tissue residue data collected. The study of the biotransfer pathways leading to this antimony bioaccumulation is extremely difficult due to the transient nature of fish and sediments. Thus, EPA would proceed with the remedial activities stated in the Interim ROD.

The Interim ROD states generally that EPA would remove sediment waste in the river immediately along the south bank, adjacent to the site. The wastes will be identified by visual inspection. The risk to the adult angler (through fish consumption) could then be reassessed during future five-year reviews using fish tissue concentration comparisons (to the RI concentration levels) as the decisive information.

Figure 6
Rockwool Industries, Inc.



Leon River Fish and Sediment Concentrations

REMEDIAL ACTION OBJECTIVES

The Feasibility Study (FS) was prepared in accordance with EPA's guidance document entitled Presumptive Remedies for Metals-in-Soil Sites (EPA, 1999). Based on the operation of the Site and the nature and extent of contamination identified, EPA has deemed the presumptive remedy approach appropriate.

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 soil 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 ground water are:

1. RAO No. 1 - Prevent direct human contact (site workers) with surface soil/waste containing arsenic at concentrations above 200 mg/kg.
2. RAO No. 2 - Prevent direct human contact (site workers) with surface soil/waste containing antimony at concentrations above 310 mg/kg.
3. RAO No. 3 - Prevent direct human contact (site workers) with surface soil/waste containing lead at concentrations above 1,754 mg/kg.
4. RAO No. 4 - Prevent leaching and migration of arsenic from surface/subsurface soils/waste into groundwater and surface water resulting in arsenic concentrations exceeding 50 µg/L.
5. RAO No. 5 - Prevent leaching and migration of antimony from surface/subsurface soils/waste into groundwater and surface water resulting in antimony concentrations exceeding 6 µg/L.
6. RAO No. 6 - Prevent leaching and migration of lead from surface/subsurface soils/waste into groundwater and surface water resulting in lead concentrations exceeding 5 µg/L.
7. RAO No. 7 - 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 ground water seeps.

Therefore, the following RAO was developed to address human health risks posed by sediment through ingestion of fish:

8. RAO No. 8 - 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 ASWQS are not exceeded. Sediment PRGs were to be developed during the Remedial Design (RD) phase. However bioassay 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 will however remove all visible sediments in the Leon river adjacent to the Site.

SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives were developed separately for the Geer/Cemetery Property, North Property, and Central/OU 2 Area, to allow for a wider range of alternatives and greater flexibility when selecting the Selected alternatives.

Provisions of the NCP require that each alternative developed be evaluated against the nine criteria listed in 40 CFR 300.430(e)(9). These criteria were published to provide grounds for comparison of the relative performance of the alternatives and to identify their advantages and disadvantages. The criteria include: 1) overall protection of human health and the environment; 2) compliance with applicable, relevant and appropriate requirements; 3) long-term effectiveness and permanence; 4) reduction of toxicity, mobility, and volume (TMV) through treatment; 5) short-term effectiveness; 6) implementability; 7) cost; 8) community acceptance; and 9) state agency acceptance. The first two criteria are minimum, or “threshold” criteria that must be met by all alternatives. The next five are considered “balancing” criteria and are the primary criteria upon which the detailed analysis is based. The last two are considered “modifying” criteria and are deferred until the public comment process is complete. The detailed evaluation of alternatives for the three main areas stated above were evaluated against the nine criteria in the Interim ROD (*Interim Record of Decisions, Rockwool Superfund Site*, September 2003). The Final ROD has the same Selected and Secondary alternative as the Interim ROD except EPA has switched the Selected and the Secondary alternative. EPA believes that the Selected Alternative (recycling/beneficial reuse) will not be cost effective and will create short term risks associated with large scale transportation e.g. accident, spillage, and blowing of contaminated dust from trucks. This fact was discovered after completing the Remedial Design (RD) for the Interim ROD. The Secondary Alternative (onsite containment in a multilayered industrial landfill) from the Interim ROD was found to be cost effective and provided the same level of protectiveness for human health and the environment. Thus the onsite containment was chosen as the Selected Alternative. The Remedial Design for the Interim ROD considered only the Selected and Secondary Alternative for detailed cost evaluation.

The costs listed in Table 4 are from the RD process for the Interim ROD and include all engineering, construction, and O&M for the life of the project. As noted earlier no additional remedial measures are needed to address the ecological risks. As stated in the EPA guidance (RD/RA Action Handbook, 1995), these estimated costs are expected to provide an accuracy of plus 15 percent to minus 5 percent.. The annual O&M and periodic costs below are expressed in terms of present value. The capital costs are not present value due to the short-term nature of the work.

SELECTED REMEDIAL ALTERNATIVE

The selected remedial alternatives presented here are the same as those presented in the Interim ROD except that EPA has switched the Selected and the Secondary Alternative, as EPA believes the Selected Alternative presented in the Interim ROD (beneficial reuse) will not be cost effective. The Selected Alternative now allows for construction of an onsite containment cell for disposal of the waste as opposed to trucking the waste offsite for beneficial reuse. This cell would provide the same level of protectiveness for human health and the environment as the recycling and beneficial reuse option. However the onsite containment remedy is more cost effective (see Table 4). The remedies defined herein are presented according to study areas from the RI/FS and are being proposed by EPA in the Final Record of Decision.

Geer Property and Cemetery Area

Excavation of PRG Exceedances and Onsite Containment (GC-3)

This alternative would include excavation and removal of the PRG exceedances identified at the Geer Property and Cemetery Area and disposal onsite in a containment cell. The onsite containment cell would be constructed at the southeast corner of the Central Property to contain the excavated soil/waste. The containment cell would be designed to have a capacity of approximately 66,100 cubic yards (cy) and would prevent infiltration of water into the cell to prevent migration of COCs out of the cell. The estimated volume of PRG exceedances to be excavated and removed is approximately 1,900 cy. Documentation samples will be collected and tested for antimony, arsenic and lead concentrations during the excavation process.

After the material has been removed, an underground culvert would be installed along the existing drainage ditch west of the Cemetery Shot Pile (CSP), to minimize erosion and transport of unexcavated waste into the Leon River. A smaller culvert would be installed along the east side of the CSP (adjacent to the grave sites) to control storm water between the grave sites and the CSP. The smaller culvert would be connected to the larger culvert west of the CSP. The excavation and culvert installation impacted area will then be regraded and covered with a minimum of 1 foot of clay and 6 inches of top soil to prevent direct human contact and transport of the waste into the river. The estimated area to be covered is approximately 4,500 square yards (sy).

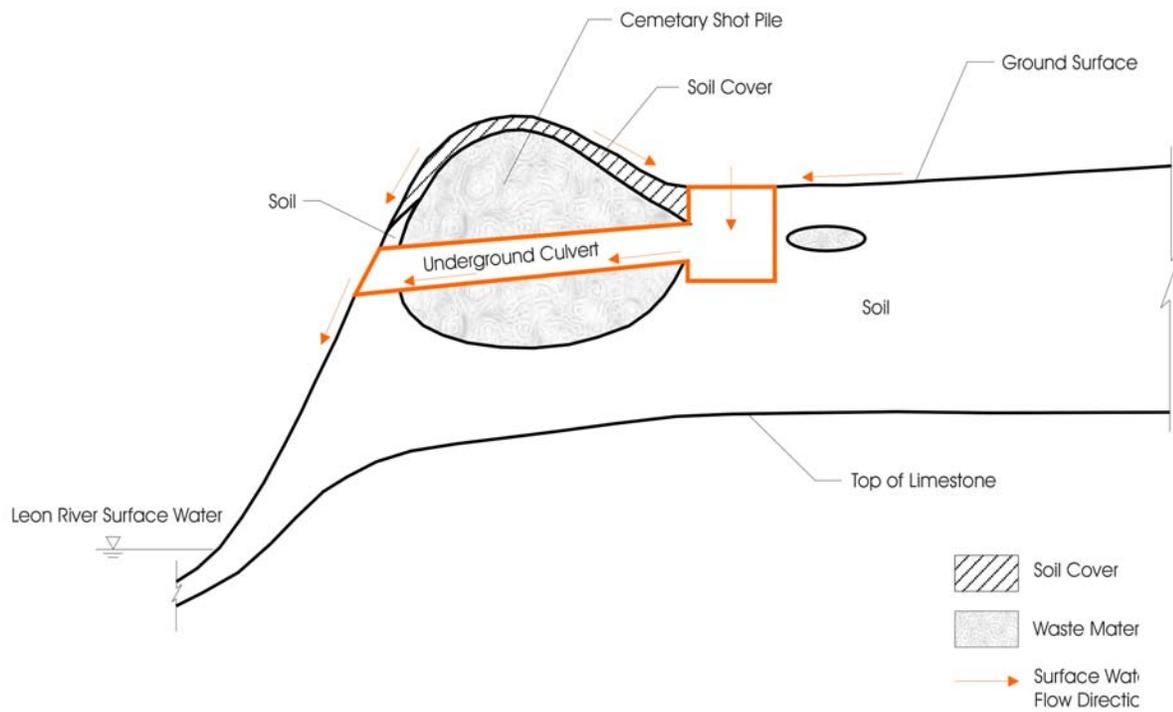
Since waste material will be left onsite (that below the PRG), maintenance of the soil cover and onsite containment cell would be required. This will be accomplished by EPA through 5-year reviews of the project.

Based on the detailed evaluation and comparative analysis of the alternatives developed for this area, this alternative provides the best balance among the alternatives with respect to the nine CERCLA evaluation criteria. As compared with other alternatives, the onsite containment alternative option would significantly reduce human health and environmental risks and minimize the future Operations and Maintenance (O&M) efforts by removing the soil and waste from their current locations and placing them in a containment cell located away from the river.

This alternative is designed to achieve the contaminant-specific, location-specific, and action-specific ARARs and is effective and permanent because it would significantly reduce the mobility of the COCs through removal and disposal of the PRG exceedances in an onsite containment cell, and implementation of a soil cover and culverts to stabilize the remaining waste. During the remedial action, short-term health-related risks would be minimized through use of emission control techniques such as dust suppressants and silt fencing. Short-term

Figure 7
Underground Culvert Cross Section
Rockwood Industries, Inc.

Conceptual Design of the Underground Culvert



nuisance noise impacts and safety-related risks to the community are anticipated to be minimal because the major construction and transportation activities are within the site boundary. The duration of the short-term effectiveness until the Remedial Action Objectives (RAOs) are achieved is a few months.

North Property Area

Excavation of PRG Exceedances and Onsite Containment (NP-3)

This alternative would include transferring the waste water in the Evaporation Lagoon to the Brazos River Authority Publicly Owned Treatment Works for treatment; removing the waste pockets and other visible waste materials identified along the Leon River bank and the PRG exceedances identified at the North Shot Pile (NSP) and lagoon areas; disposing of the excavated waste materials in an onsite containment cell to be constructed in the Central Property and covering the remaining waste and construction impacted area with a 1-foot soil cover.

It is estimated that the lagoon contains approximately 800,000 gallons of water. Once drained, culverts will be installed from the lagoon inlet sumps to the top of Leon River bank because the lagoon inlet sumps receive storm water from the former processing area (OU2). The lagoon will then be back filled with the soil generated during construction of the onsite containment cell and/or low level material from the Leon River bank and South Shot Pile excavations. Waste pockets and other visible waste materials along the Leon River bank will be identified and removed (to the extent practical). An interceptor ditch will be installed along the top of the Leon River bank to control storm water and reduce erosion of the river bank. Rip-rap (or equivalent) will be placed on the bank at the excavation points and from the interceptor ditch to the Leon River.

Waste and contaminated soil containing COCs exceeding direct contact PRGs will be excavated at the NSP and the areas around the Evaporation Lagoon up to two feet below ground surface. Documentation samples will be collected and tested for antimony, arsenic and lead concentrations during the removal. The estimated material requiring excavation is approximately 6,100 cy for the NSP and 4,600 cy for the areas adjacent to the lagoon. The excavated material will be disposed of in a onsite containment cell. The area will be regraded after excavation to a slope between 2% to 6%, and a minimum of 1-foot of clay and 6-inches of top soil will be placed over the impacted areas. The soil cover will be seeded with a grass variety capable of providing long-term erosion control. The cover over the NSP and lagoon areas will be approximately 15,800 sy and 13,700 sy in size, respectively. The impacted Leon River bank will also be covered and stabilized.

This alternative will include implementation of Institutional Controls to: prevent future use of the shallow ground water; prevent any disturbance of the clay cap that would negatively effect the function of the cap, excepting temporary utility construction or repair; and provide for the continued effectiveness of the interceptor trench and surface flow controls or their substitutes. Deed restrictions will be placed on the affected property, as appropriate or as allowed by law to protect industrial worker from contacting the Site waste and effected soil that does not meet Site PRGs and prohibit accessing the shallow ground water. In addition the property is zoned for heavy industrial use and industrial zoning will be maintained by the City. The TCEQ will enforce the Institutional Controls. This alternative will require annual inspection and maintenance of the soil cover, collecting ground water samples semiannually for 5-years from four existing wells (analyzing for antimony, arsenic, and lead); and conducting a site review no less than every five years. The five year review will include an analysis of the efficacy of the ICs.

Based upon the detailed evaluation and comparative analysis of the alternatives developed for this area, this alternative provides the best balance among the alternatives with respect to the nine CERCLA evaluation criteria. It provides reasonable protection of human health and the environment as the soil/waste containing COCs at concentrations exceeding PRGs would be removed and disposed of in an onsite containment cell. The soil cover over the residual waste and the interceptor ditch along the top of the Leon River bank would minimize the transport of the residual waste into the Leon River. As compared with other alternatives, it would significantly reduce human health and environmental risks and minimize the future O&M effort by removing the soil/waste containing COCs exceeding PRGs from their current locations.

This alternative can be designed and implemented to achieve the contaminant-specific, location-specific, and action-specific ARARs. It is an effective and permanent remedy because the waste material posing relatively high risks to human health and the environment will be managed in a way that offers a significant reduction in waste mobility by placement in the onsite containment cell and use of the soil cover. The short-term effectiveness is measured with respect to the time until the RAOs are achieved. It would take a only few months for implementation.

Central Property and OU2 Area

Excavation of Soil/Waste and Onsite Containment (CP-4)

This alternative would include excavation and removal of the soil/waste containing COCs exceeding direct contact PRGs and all above ground waste at the South Shot Pile (SSP). Confirmation samples would be collected to confirm that the direct contact PRG exceedances have been completely removed using an exposure point concentration averaged basis. The estimated material requiring excavation is approximately 51,900 cy. The excavated material will be disposed of in an onsite containment cell.

In addition to the above remedial activities, this alternative would also include collecting ground water samples semiannually for five years from eight existing wells and analyzing for antimony, arsenic and lead, as well as conducting a site review no less than every five years for 30 years to ensure that the remedy remains protective of human health and the environment.

Based upon the detailed evaluation and comparative analysis of the alternatives developed for this area, it provides the best balance among the alternatives with respect to the nine CERCLA evaluation criteria providing reasonable protection of human health and the environment, as the soil/waste containing COCs at concentrations exceeding PRGs and remaining waste would be removed and managed.

This alternative will include implementation of Institutional Controls as previously described to prevent future use of the shallow ground water, to protect the integrity of the containment cell and its cap and to provide for the protection of, and access to, all monitor wells.

This alternative would be designed and implemented to achieve the contaminant-specific, location-specific, and action-specific ARARs. It would be effective and permanent because the waste pile and contaminated surface soil will be removed to the onsite cell. During the remedial action, short-term, health-related risks would be minimized through emission control techniques. Short-term nuisance noise impacts and safety-related risks to the community are anticipated to be minimal because the major construction and transportation activities are within the site boundary.

The short-term effectiveness, with respect to the time until the RAOs are achieved, is several months.

SECONDARY REMEDIAL ALTERNATIVE

EPA switched the Selected and Secondary remedial alternatives since publishing the Interim ROD. The Selected Alternative now includes disposing of the excavated waste in an onsite lined and covered containment cell. This switch was made to lessen the cost and improve the chances of the project being done successfully because there are a very limited number of recycle/disposal facilities that can handle the waste. For the Final ROD, both remedial options will have a design completed and both designs will be offered for bid to construction firms for the purpose of competitive pricing. The response with the best value will be selected. Value in this case will be judged by offering an increase in human health and environmental protectiveness, for a reasonable price.

The waste materials identified at the Site includes shot, slag, brick, and contaminated soils. Since the wastes contain large amount of aggregate, by properly sizing the aggregate and adding appropriate amount of stabilization agents and other additives into the treatment process, the wastes can be treated/processed to meet the road base material specifications, for beneficial reuse as base material in road construction projects. This secondary remedial alternative includes excavating wastes/contaminated soil containing antimony, arsenic, and lead exceeding the PRGs, processing and stabilizing the excavated wastes/contaminated soils to meet the applicable engineering and environmental specifications, and recycling the wastes/contaminated soils for beneficial reuse as a road base material. Depending on the specific needs by the different type of road construction projects, additional aggregate from other offsite sources may be required to meet the engineering specifications. The non-hazardous wastes to be recycled and applied in the road construction projects have to meet the standard engineering criteria and certain environmental criteria established by EPA, TxDOT, and TCEQ.

The recycling remedy became the secondary remedy by virtue of it not being cost effective. Also the degree of protection of human health and the environment of the recycling remedy was approximately the same as that of the onsite containment remedy.

MEETING REMEDIAL ACTION OBJECTIVES

Eight RAOs were established as part of the Interim ROD. RAOs are goals for remedial alternatives that specify the specific chemical wastes, types of receptors exposed to those wastes (groups of humans or wildlife), exposure routes, and cleanup levels that must be met by the selected remedial alternatives. The RAOs are listed earlier in this document. The following section describes how each remedy meets the RAOs

Selected Remedial Alternative

The RAOs No. 1 through No. 6 will be met by removing the Site related waste and contaminated soil exceeding the PRGs from their current locations and placing these material into an onsite containment cell, which is at a location away from the surface water. The clay soil and geotechnical membrane used to construct the containment cell will prevent the direct contact with Site related wastes by humans and wildlife and minimize the leaching of COCs into the ground water.

The RAOs No. 7 and No. 8 will be met by implementing underground culverts along the west side of the CSP and between the Evaporation Lagoon inlet sump and the Leon River bank; covering the remaining waste at CSP and NSP with a minimum one foot clay soil and 6-inch top soil; installing an interceptor ditch along the top of Leon River bank to control storm water and

reduce degradation of Leon River bank; and removing residual waste at SSP and visual waste along the Leon River bank above and below the water line, and placing the wastes into the onsite containment cell. Surface water runoff and erosion of the residual waste/contaminated soil will be minimized upon implementing the remedy.

Secondary Remedial Alternative The RAOs No. 1 through No. 6 will be met by removing the Site related waste and contaminated soil exceeding the PRGs, processing the waste material and soils to meet the TXDOT Item 247 specification at an onsite or offsite treatment facility, and beneficially reusing the material into offsite road construction projects. The human and ecological exposure pathways to the Site related waste materials and soils are eliminated because the contaminated materials are completely removed from the site and processed into a useful construction material.

The RAOs No. 7 and No. 8 will be met by implementing underground culverts along the west side of the CSP and between the Evaporation Lagoon inlet sump and the Leon River bank; covering the remaining waste at CSP and NSP with a minimum one foot clay soil and 6-inch top soil; installing an interceptor ditch along the top of Leon River bank to control storm water and reduce degradation of Leon River bank; and removing residual waste at SSP and visual waste along the Leon River bank above and below the water line, processing the waste material to meet the TXDOT Item 247 specification at an onsite or offsite treatment facility, and beneficially reusing the material with offsite road construction projects. Surface water runoff and erosion of the residual waste/contaminated soil will be minimized upon implementing the remedy.

COMPLIANCE WITH APPLICABLE OR RELEVANT APPROPRIATE REQUIREMENTS (ARARs)

The remedies in this Final ROD are unchanged from the Interim ROD. This resulted from the bioassay which showed that no additional remedial measures are required to address the ecological risks. Thus the Applicable and Relevant Appropriate Regulations (ARARs) remain the same as in the Interim ROD. However the ARARs are briefly restated below for the benefit of interested reviewers.

The contaminant specific ARARs associated with the Selected and secondary remedial alternatives are the Texas Surface Water Quality Standards (TSWQSS) (30 TAC 307), the Federal Water Quality Criteria (FWQC) (40 CFR Part 131), and the Texas Risk Reduction Standards (RRS) (30 TAC 335 Subchapter S). The TSWQSS establish limits for constituents for the protection of surface water quality in Texas and the FWQC apply to water classified as a fisheries resource. The RRS establish 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. Both the Selected and secondary remedial alternatives are designed to achieve the contaminant specific ARARs.

In addition to the above contaminant specific ARARs, the key location and action specific ARARs associated with the Selected and secondary remedial alternatives also include the Texas Pollutant Discharge Elimination System (TPDES); Construction Stormwater Permit (30 TAC 205); Standards for Waste Piles and Landfills (40 CFR Part 264 Subparts L and N); Texas Industrial Solid Waste and Municipal Solid Waste Regulations (30 TAC 335); and Control of Air Pollution from Visible Emissions and Particulate Matter (30 TAC 111). The TPDES permit is addressed relative to stormwater discharges associated with industrial activity. It requires the development and implementation of a stormwater pollution prevention plan or a stormwater best

management plan during the facility operation or site remediation. The Standards for Waste Piles and Landfills Subparts L 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. The Texas Industrial Solid Waste and Municipal Solid Waste Regulations set forth guidelines for generators to determine if a solid waste is a hazardous waste and require adherence to storage, treatment, and disposal requirements. The Control of Air Pollution from Visible Emissions and Particulate Matter ARAR requires that all reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including use of water or chemicals for control of dust in the demolition of existing structures, construction operations, clearing of land, and on dirt roads or stockpiles. The Selected and secondary remedial alternatives can be designed and implemented to achieve the key location and action-specific ARARs.

REMEDIAL ALTERNATIVE COST COMPARISONS

Presented below in Table 4 is a breakdown of the costs for the remedial alternatives selected for the Site. The costs presented in Table 4 are based on the 90% Remedial Design (RD) and are thus more accurate than the costs from the FS presented in the Interim ROD. The table presents the differences in both the onsite disposal and offsite recycling options as well as presenting the overall costs as a function of the capital costs, operations and maintenance costs and periodic costs. In summary, EPA believes the alternatives presented above that include onsite containment cell disposal will be significantly less expensive (\$3.2 million less) than the beneficial reuse option. At the same time this remedy (on-site containment) will provide about the same level of risk reduction as the recycle/reuse remedy. See Table 4 below for the detailed costs.

Table 4
Rockwool Industries, Inc.
Remedial Action Cost Estimate Breakdown

	Cemetery– Geer Property	North Property	OU2 & Central Property	Total Cost
Selected Remedial Alternative <i>Excavate & Onsite Containment Cell</i>				
Capital	\$187,000	\$850,000	\$3,822,000	\$4,859,000
Operation & Maintenance (NPV)	\$30,000	64,000	\$80,000	\$174,000
Periodic (NPV)	\$22,000	43,000	\$43,000	\$108,000
Total	\$239,000	\$957,000	\$3,945,000	\$5,141,000
Secondary Remedial Alternative <i>Excavate & Transport to Recycle Facility</i>				
Capital	\$267,000	\$1,515,000	\$6,386,000	\$8,168,000
Operation & Maintenance (NPV)	\$30,000	64,000	\$33,000	\$127,000
Periodic (NPV)	\$22,000	43,000	\$43,000	\$108,000
Total	\$319,000	\$1,588,000	\$6,461,000	\$8,368,000

Notes:

NPV is Net Present Value of annual costs for next 30-years.

STATUTORY DETERMINATION

The selected remedy for the site will excavate soil in which the Antimony concentration exceed PRGs to prevent direct human contact (surface soil/waste) . The excavated material will be consolidated in an on-site multilayer industrial landfill . The remedy will also dredge wastes which have washed into the Leon River from the river's south bank (along the Site). This is likely the cause of the higher than background Antimony concentration in fish tissue. The dredged material and the sediments from Leon River will be consolidated in an on-site industrial landfill (containment cell). Waste in the North Property and Geer-Cemetery Area that is below the PRGs, will be covered with one foot of clay to prevent rainfall infiltration and further leaching of contaminants into ground water, which unloads into the Leon River through seeps. Institutional Control (IC) will be implemented to preserve the integrity of the cap. Deed restrictions will be placed on the property as appropriate or as allowed by law to maintain the integrity of the cap. In addition the industrial zoning will be maintained by the City. In the Central Property area soil/wastes containing COCs exceeding direct contact PRG exceedances will be excavated and consolidated in the onsite containment cell (industrial landfill) along with wastes from other parts of the Site. Wastes in the Central Property area are a thin veneer over the uncontaminated soil and do not require a cap. An Institutional Control will be implemented for the Central Property and the containment cell to prevent future use of the shallow ground water, to protect the integrity of the containment cell and its cap and to provide for the protection of, and access to, all monitor wells.

Thus the remedy will remove the source of contamination, as well as prevent wastes from washing into the river in the future. The primary focus in the Final ROD is protection of human health and the environment. Concurrent with the Remedial Design (RD) for the Interim ROD a bioassay of the Leon River sediments with the highest values of chemicals of concern (COCs) determined that the sediments are not toxic to biota. Thus no additional remedial measures are required to address the ecological concerns. However the sediments along the Site will be excavated from the Leon River as planned in the Interim ROD. At this point there is no direct evidence that higher than background Antimony in fish tissue is due to the sediments in the Leon River. However proactively removing the sediments and preventing any future discharge into the Leon River will provide an opportunity to check if fish tissue Antimony values decrease during the Five Year Review. If there is no decrease in the fish tissue Antimony then the source of the antimony must be something other than the Site wastes.

The selected remedy and alternate remedy are protective of human health and the environment in the short term; comply with those Federal and State requirements that are applicable or relevant and appropriate for this limited-scope action; and are cost effective. Although the final action is not intended to address the statutory mandate for permanence and treatment to the maximum extent practicable, the selected action provides the same level of protection at a lower cost than the recycling remedy which satisfies the preference for treatment

Because the selected remedy and the alternate (contingent) remedy provide for cleanup suitable for industrial use but will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

RESPONSIVENESS SUMMARY

1. Q: We have an industry interested in using the structures on the 14 acre site which, as you recall, was deeded to the City as a result of a tax (Sheriff's) sale. Is an industrial use allowed before clean up, since EPA will not be involved in those locations: the office building, the concrete walled bins, and the asphalt parking lot?

1. A: As provided under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Section 104(e), 42 U.S.C. § 9604(e), EPA is authorized to access property when it has a reasonable basis to believe there may be a release or threat of release of hazardous substances or pollutants or contaminants on the property. The Remedial Investigation/Feasibility Study demonstrated there has been a release of hazardous substances at the RWI Superfund Site. CERCLA Section 104(e) also allows EPA to access property where entry is needed to effectuate a response action. Here, EPA is prepared to effectuate a response action as identified in the Proposed Plan and Record of Decision for the Site.

To the extent an industrial use of the property occurs before the cleanup or during the cleanup of the RWI Superfund Site, it shall not interfere or otherwise limit any EPA cleanup activity conducted at the Site. Pursuant to CERCLA 104(e), EPA may issue an order directing compliance with an EPA request to neither interfere, nor engage in activities which limit EPA's ability to conduct response actions at a Site. Such orders are enforceable, and may result in the imposition of a penalty for noncompliance.

2. By what authority can EPA create a containment cell on a privately owned parcel of land, the 80.4 acre tract for example? Is notification required? Concurrence of the property owner needed?

Pursuant to CERCLA Section 121(a), 42 U.S.C. § 9621(a), and the National Contingency Plan (NCP), EPA is authorized to conduct remedial actions at sites where there has been a release or threat of a release of hazardous substances, pollutants, or contaminants which constitute a threat to human health or the environment. The NCP directs EPA to produce a Record of Decision documenting all the facts, analyses of facts, and site specific policy determinations considered in the course of selecting a remedial action. In addition, EPA is required to utilize nine remedy selection criteria consistent with 40 C.F.R. § 300.430(f).

Pursuant to CERCLA Section 117, 42 U.S.C. § 9617, and the NCP, before EPA adopts a plan for remedial action, it must allow public participation in the remedy selection process. The public participation process affords public and private parties with notice and an opportunity to provide written and oral comments, and to review the contents of the administrative record file. The administrative record file includes information which forms the basis for the selection of the response action consistent with 40 C.F.R. § 300.810. While the public participation process and nine remedy selection criteria certainly consider private parties' input, there is no private party concurrence right in the remedy selection process.

3. If we acquire the 80.4 acre tract by eminent domain, by condemnation, does any liability accrue to the City of Belton for the clean up costs? How would this work, and is it different from acquisition by a tax (Sheriff's) sale?

To protect certain parties from liability, CERCLA Sections 101(20)(D), 107(b)(3), and 9601(35)(A) and (D), 42 U.S.C. §§ 9601 and 9607, contains both liability exemptions and affirmative defenses to liability. As such, if the City acquires property through the exercise of

eminent domain by condemnation, it will have a third party-party defense to CERCLA owner/operator liability under CERCLA Sections 107(b)(3) and 101(35)(A). It is EPA's policy to treat such acquisitions as involuntary, and thus, the third-party defense to CERCLA owner/operator liability attaches to public entities. Note however, the City would not have the above-mentioned affirmative defense if it has caused or contributed to the release or threatened release of contamination from the RWI Superfund Site. Thus, if the City acquires Site property, it should ensure that it does not cause or contribute to the Site's contamination after such acquisition.

It is EPA's policy to treat acquisitions by tax sale or foreclosure as involuntary as well. CERCLA Section 101(20)(D), specifically exempts from the definition owner or operator, any unit of state or local government which acquired ownership or control of a facility involuntarily through tax delinquency. Therefore, the City would be exempt from CERCLA owner/operator liability, and would also have the affirmative defense under CERCLA Section 107(b)(3). The City would not be covered by neither the liability exemption, nor the third party defense if it has caused or contributed to the release or threatened release of contamination from the RWI Superfund Site. Accordingly, if the City acquires Site property, it should ensure that it does not cause or contribute to the Site's contamination after such acquisition.

4. Will the clean up liability accrue to Nev-Tex (current listed owner) after EPA cleans up the site with no change in ownership? If the City acquires it? If Nev-Tex tries to sell it? Will a lien in the amount of clean up costs be placed on the property for any future private purchaser?

Under CERCLA Section 107 (a), Nev-Tex is liable as a current owner of the RWI Superfund Site. The response provided in item three (3) provides a response to the City's acquisition of the property within the RWI Superfund Site. Private party liability will attach to a private party's acquisition of Site unless it qualifies as a bona fide prospective purchaser under CERCLA Sections 101(40) and 107®, or an innocent landowner pursuant to CERCLA Sections 107(b)(3) and 101(35). Although EPA has not exercised its enforcement discretion to record a lien on the Site property to date, the Agency has the authority to record a lien under CERCLA Sections 107(l) and ®). The Agency may or may not perfect a lien on the Site property depending on the circumstances. Some of those circumstances include but are not limited to whether substantial un-reimbursed cleanup costs are unlikely to be recovered from liable parties, and whether an entity who acquires or sells the property will reap a significant windfall directly from EPA's expenditure of Superfund money.

5. Q: Is clay cap the only on-site option for the shot waste? Could the waste be spread out, covered with dirt, with grass allowed to grow over it, with the leaching at river bank eliminated?

5. A: what EPA is trying to do is to collect all contaminants and consolidate in the contaminant cell thus making most of the site area usable after clean up. By creating the containment cell 95% of the site area will be available for industrial use which is the designated zoning for the area.

6. Q: What cleanup is planned for the rail road bed and railroad track itself ? Will the track be temporarily relocated, the road bed gravel removed and replaced, and rail ties put back in place ?

6. A: No EPA has no plans to pull tracks out as the railroad has minimal contamination. Also the gravel will protect workers from contacting any low level contamination.

7. Q: How high will the containment cell be ? Can EPA place it as far away from FM 93 as possible?

7. A: The cell will be 7 to 10 foot tall as the maximum height. EPA is redesigning to place the cell away from FM 93 in the Central Property. The City had requested if it can be placed in the North Property. EPA found that Texas regulations do not allow landfills to be placed closer than 500 feet from a public water body which is the case with the Leon River. Moreover Taylors Valley road is only 600 feet from Leon River at the North Property, thus North Property was not a feasible location for the cell. To reduce the height of the containment cell EPA is investigating a bigger base area for the cell. With the cell occupying 5-6 acres the height could be reduced by about 5 feet. Even with the bigger base area 95 % of the Site will be available for industrial use.

