RECORD OF DECISION
TEX TIN CORPORATION SUPERFUND SITE
OPERABLE UNIT NO. 3 - RESIDENTIAL PROPERTY
LA MARQUE, GALVESTON COUNTY, TEXAS

Prepared by:
U. S. Environmental Protection Agency
Region 6
Dallas, Texas

TEX TIN CORPORATION SUPERFUND SITE
OPERABLE UNIT NO. 3 - RESIDENTIAL PROPERTY
LA MARQUE, GALVESTON COUNTY, TEXAS

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TEX TIN CORPORATION SUPERFUND SITE
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Further Action Not Necessary For Protection
And Five-Year Review Is Not Required

SITE NAME AND LOCATION

Tex Tin Corporation Superfund Site, CERCLIS No. TXD062113329, is located in Texas City and La Marque, Galveston County, Texas. This Record of Decision addresses only Operable Unit No. 3 which is located in La Marque, Texas.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the United States Environmental Protection Agency's (EPA) determination that no further remedial action will be required at the residential area of La Marque, Texas, which has been designated Operable Unit No. 3 (OU No. 3) of the Tex Tin Corporation Superfund Site (Tex Tin Site). The successful completion of a Time-Critical Removal Action conducted by EPA at the residential properties of La Marque from March 1999 through June 1999 has eliminated the need for further response action at this operable unit. EPA's decision is in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), 42 U.S.C. § 9601 et seq., and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. The determination is based upon review and consideration of public comment and the entire administrative record.

The Administrative Record contains the documents that form the basis for the selection of a response action. The Administrative Record is available for review at the EPA Region 6 offices at 1445 Ross Ave., Suite 1200, Dallas, Texas 75202; the Moore Memorial Public Library, 1701 Ninth Avenue North, Texas City, Texas 77590; and the Texas Natural Resource Conservation Commission, Technical Park Center, Building D, 2118 North IH-35, Austin, Texas 78711-3087.

The State of Texas, through the Texas Natural Resource Conservation Commission (TNRCC), concurs with EPA's decision that no further action is necessary for the residential properties of La Marque, Texas, OU No. 3 of the Tex Tin Superfund Site.

DESCRIPTION OF SELECTED REMEDY - NO FURTHER ACTION

Operable Unit No. 3, the subject of this Record of Decision, refers to a residential area located in LaMarque, Texas, approximately 2,000 feet west-northwest of and generally downwind from Operable Unit No. 1, an inactive smelter plant in the adjacent town of Texas City, Texas. No further remedial action is necessary at Operable Unit No. 3, the residential properties in La Marque, Texas. A previous response action, specifically a Time-Critical Removal Action

performed in 1999 in which contaminated soil and debris were excavated from OU No. 3 properties and taken offsite for disposal, permanently addressed the threat to human health and the environment from smelter-related contamination. The principal contaminant found at the site and the one presenting the highest risk was arsenic. Arsenic was found in the soil of 25 residential properties at levels above 20 parts per million, the health-based action level.

In order to provide prompt risk reduction through expedited action in the residential areas, EPA authorized the Time-Critical Removal Action in September, 1998. Mobilization to the field followed in March, 1999. During the removal action, soil contaminated with arsenic above health-based levels was excavated from the yards of residential properties and trucked off-site for disposal. The excavated area was filled with clean backfill and the yards were revegetated with a grass sod cover. The removal action was conducted on properties to which access was granted to EPA, resulting in the cleanup of 24 out of 25 residential properties within the OU No. 3 area. All contamination removed from the residential properties was disposed of offsite at a permitted facility authorized to receive such wastes. EPA designed the removal action to provide long-term protection to persons living in the residential areas and established conservative health-based soil cleanup levels. Documents detailing EPA's removal activities are located in the Administrative Record for the Tex Tin site, specifically the Removal Funded Report dated July 30, 1999.

STATUTORY DETERMINATION

EPA's Removal Funded Report dated July 30, 1999, documents completion of the removal action conducted by EPA from March 1999 through June 1999 at OU No. 3 of the Tex Tin Superfund Site. The removal action resulted in overall protection of human health and the environment and complied with Federal and State requirements that are legally applicable or relevant and appropriate for sites contaminated with arsenic in soil. The removal action has addressed the elevated concentrations of arsenic at the residential areas of La Marque and provides for unrestricted residential use. The removal of contaminated soils to below action levels has negated the need for a feasibility study of remedial action alternatives for OU No. 3 and the need for further remedial action for the residential areas of La Marque. Therefore, consistent with CERCLA and the NCP, I have determined that five-year reviews are not necessary for the residential properties of La Marque which were designated OU No. 3 of the Tex Tin Site.

AUTHORIZING SIGNATURES

/s/Myron O. Knudson
for Gregg A. Cooke
Regional Administrator
Region 6

9/29/2000
Date

OPERABLE UNIT NO. 3
LA MARQUE, GALVESTON COUNTY, TEXAS

CONCURRENCE SIGNATURES

_____ _____
Carlos A. Sanchez Date
Remedial Project Manager

_____ _____
Pamela J. Travis Date
Senior Attorney

_____ _____
Mark Peycke, Chief Date
Superfund Branch
Office Of Regional Counsel

_____ _____
Gus Chavarria, Chief Date
ARK/OK/TX Project Management Section

_____ _____
William K. Honker, Chief Date
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_____ _____
Myron O. Knudson, P.E. Date
Director, Superfund Division

_____ _____
Lawrence E. Starfield Date
Regional Counsel

DECISION SUMMARY FOR THE RECORD OF DECISION
TEX TIN CORPORATION SUPERFUND SITE
OPERABLE UNIT NO. 3- RESIDENTIAL PROPERTY
LA MARQUE, GALVESTON COUNTY, TEXAS

SITE NAME, LOCATION, AND DESCRIPTION

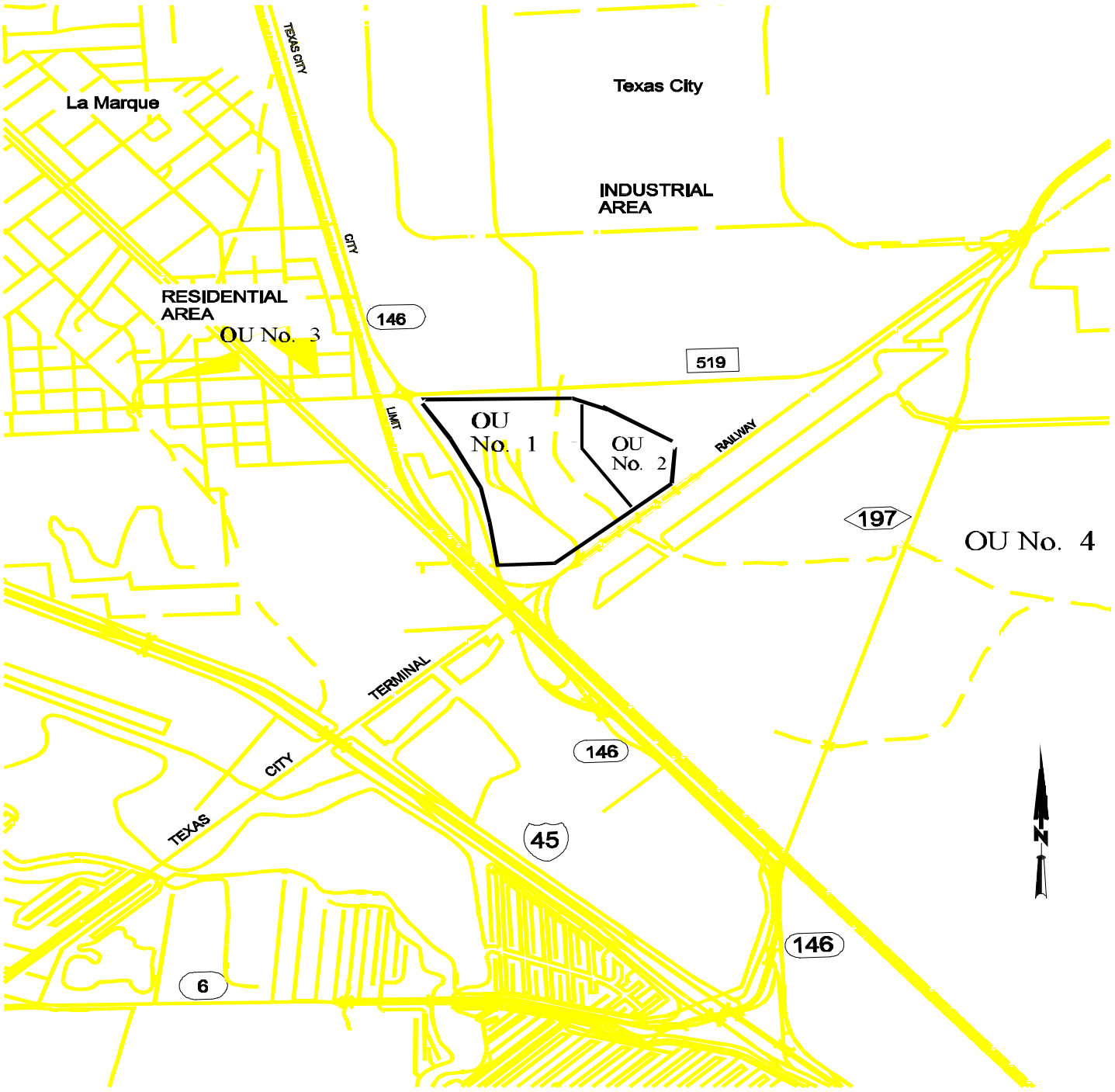
The Tex Tin Corporation Superfund Site, CERCLIS No. TXD062113329, is located in Texas City and La Marque, Galveston County, Texas. This Record of Decision (ROD) addresses only Operable Unit No. 3 which includes a residential community located in La Marque, Texas. The Environmental Protection Agency is the lead agency for the Tex Tin Superfund Site. The State of Texas, through the Texas Natural Resource Conservation Commission, is the support agency. Site investigations and the Time-Critical Removal Action for OU No. 3 were performed by EPA and funded through the Hazardous Substance Trust Fund (Superfund).

The La Marque residential area, OU No. 3, is located approximately half a mile from the Tex Tin smelter facility; air emissions impacted the residential area during the smelter's years of operation. The Tex Tin Corporation Superfund Site encompasses a total of four operable units in Texas City and La Marque, Texas (Figure 1). The former smelter facility, OU No. 1, is located approximately 10 miles north of Galveston, in the southeast quadrant of the intersection of Farm-to-Market Road 519 and State Highway 146, on approximately 140 acres. More than 10,000 people reside within a 1 mile radius of the smelter facility. The areas north and east of the Tex Tin site are dominated by large petrochemical facilities. A municipal golf course, an industrial waste disposal facility, and marsh areas are located less than 0.5 mile to the south and southwest of the smelter. This Record of Decision for Operable Unit No. 3 addresses only the residential properties in the city of La Marque which are located about 2,000 feet to the west-northwest, and generally downwind of the former Tex Tin smelter facility (Figure 2).

The EPA is addressing the release or threat of release of hazardous substances at the Tex Tin Corporation Superfund Site (Tex Tin Site) under the authority provided in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq. (also known as Superfund) and consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300.

SITE HISTORY

The tin smelter at Texas City was constructed by the United States Government as a World War II emergency tin supply plant, and operated under a Government contract from 1941 to 1956 as the Tin Processing Corporation. In 1957 it was sold to private industry, and operated by various companies until it was shut down in 1991. Historical air emissions of inorganics and other substances from the plant are well-documented. Descriptions of the facility's operations, emissions control and analysis, permit, and compliance history indicate that arsenic was released



SITE VICINITY MAP

Tex Tin Corporation Superfund Site
FIGURE 1

38923F20.CDR

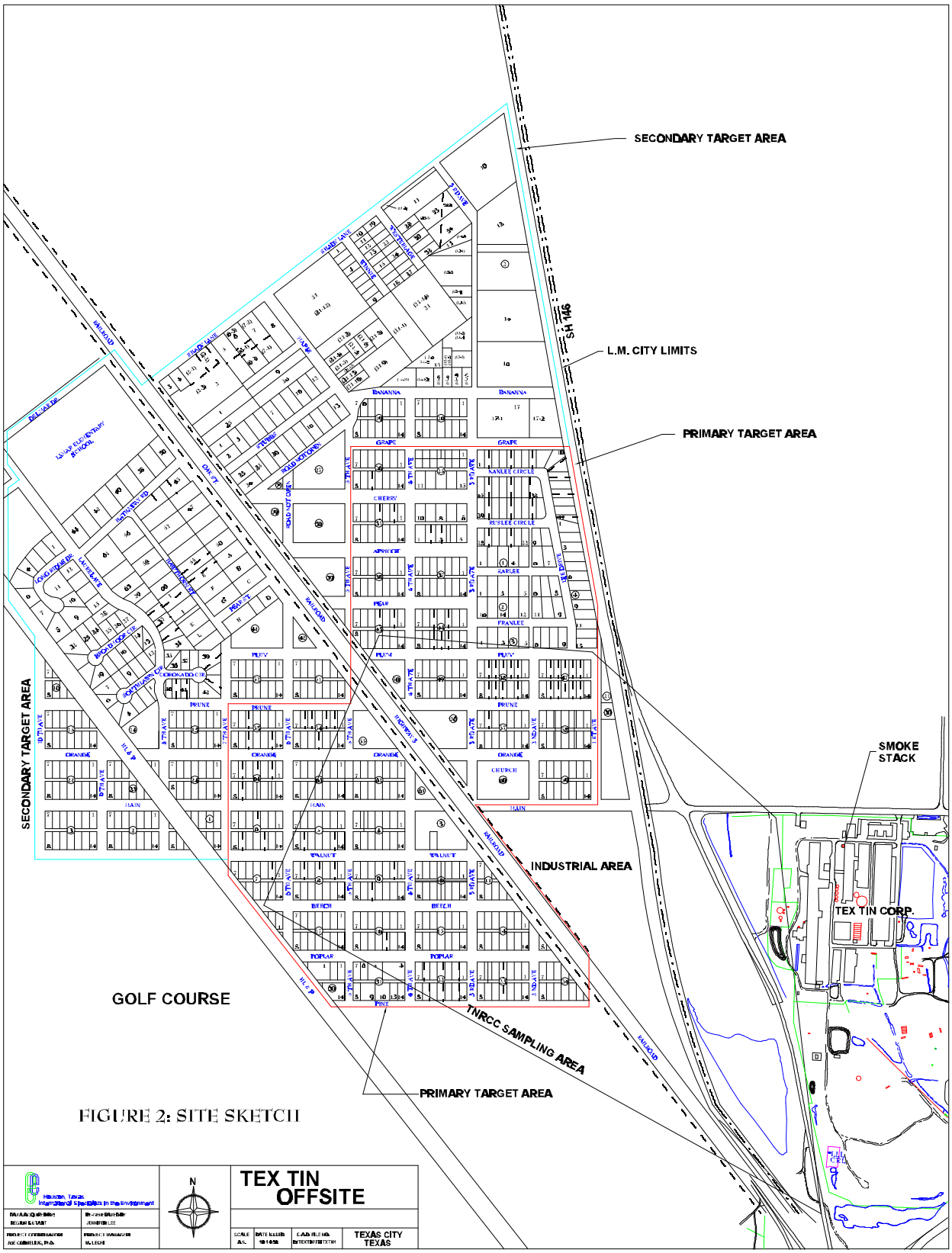


FIGURE 2: SITE SKETCH

from the Tex Tin smelter as part of emissions vented through the main stack, and in particulate and fugitive emissions leaving the buildings associated with the roasting and smelting processes and the stacks of the electrostatic precipitators.

Site Investigations and Removal Action

Site investigations for Operable Units No. 1 and 2 of the Tex Tin Site began in 1990; a Remedial Investigation was completed in 1993. In 1994, after sampling revealed the presence of heavy metals in soils in several areas of the residential neighborhood, TNRCC requested the assistance of the U.S. Environmental Protection Agency. The EPA Region 6 Response and Prevention Branch (RPB) was assigned to assess the nature and extent of actual or potential threats to public health and/or the environment posed by contaminated soils in the residential area adjacent to the inactive Tex Tin Corporation smelter plant. The EPA conducted air modeling to identify the area potentially affected by airborne emissions from the smelter, and then conducted sampling within the target area from November 1994 through January 1995. A total of 525 composite soil samples were obtained from 253 properties within the target area and screened for priority pollutant metals. The residential area was subsequently designated Operable Unit No. 3 of the Tex Tin Site.

Analytical results from the sampling effort in each residential yard were provided individually to the resident of that property. In addition, EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) provided the results of residential samples to the Texas Department of Health (TDH) in June of 1995. The TDH was asked to evaluate potential health risks to residents associated with arsenic in soil. In a Health Consultation issued on October 2, 1995, TDH concluded that exposure of children to soil contaminated at the levels found in the area was not expected to result in adverse health effects. The TDH noted that exposure was minimized by additional protection from the extensive grass cover in the neighborhood. The TDH recommended that the area should continue to be evaluated along with the rest of the Site.

In 1996-98, EPA conducted a number of studies on various operable units of the Site. Results of the studies were reported in a Supplemental Remedial Investigation, a Human Health Risk Assessment, an Ecological Risk Assessment, and a Feasibility Study. A Hazard Ranking package was also prepared. Under a Cooperative Agreement with EPA, TNRCC provided review and technical assistance throughout the site investigation process.

The Draft Baseline Human Health Risk Assessment was completed in March 1997. The Draft Risk Assessment did not identify any excess cancer risk associated with contaminants found in the residential neighborhood. The non-cancer hazard index, however, was found to exceed the regulatory benchmark of one.

On June 17, 1996, EPA proposed to add the Site to the National Priorities List (NPL) of Superfund sites. 61 Fed. Reg. 30575 (June 17, 1996). The Tex Tin NPL listing became final on September 18, 1998.

On Sept. 9, 1998, EPA published a Proposed Plan of Action for the Tex Tin Corporation smelter property, OU No. 1. By letter dated September 11, 1998, TNRCC acknowledged that cleanup of the industrial property was very important, but requested that EPA conduct a soil removal action on the contaminated residential properties immediately. On September 28, 1998, EPA issued the Action Memorandum authorizing use of Federal funds to conduct a Time-Critical Removal Action on OU No. 3. The authorized removal action consisted of excavation of arsenic-contaminated soil and debris above the action level of 20 parts per million (ppm) in residential yards identified during the 1995 sampling event. Residential properties were excavated to a depth of six (6) inches and backfilled with clean soil, and the grass cover was re-established. The contaminated soil and debris excavated from the residential properties, which contained arsenic above the health-based levels for a residential exposure scenario, but well below acceptable industrial exposure levels, was originally to be stockpiled on the OU No. 1 facility for subsequent use during the OU No. 1 response action. However, EPA was unable to secure access from the OU No. 1 property owner for this purpose. Mobilization for the removal action was initiated in November 1998, but delayed due to the problems obtaining access to OU No. 1. Field work was subsequently initiated in March 1999 and concluded in June 1999. Rather than being stockpiled on OU No. 1, the contaminated soil and debris were shipped to an approved landfill in Galveston County, Texas, secured by TNRCC.

The removal action as implemented eliminated the source of contamination, and thus the human and environmental exposure pathways. Resulting residential arsenic levels after the removal action but prior to backfilling with clean soil, are shown in the confirmation sampling results below.

Sample ID No.	Section of Property	Arsenic Results mg/kg	Sample ID No.	Section of Property	Arsenic Results mg/kg
R196071FR	Frontyard	14.8	R198471FR	Frontyard	Declined
R196071BR	Backyard	9.2	R198445FR	Frontyard	7.8
R196082BR	Backyard	8.4	R198457FR	Frontyard	8.1
R196081FR	Frontyard	13.8	R198456VR	Vacant Lot	3.4
R196074FR	Frontyard	9.5	R198436FR	Frontyard	13.3
R196129CR	Center Section	11.3	R198466FR	Frontyard	3.9
R198078FR	Frontyard	15.7	R198475FR	Frontyard	13.8
R196077FR	Frontyard	14.8	R198475BR	Backyard	7.0
R198433FR	Frontyard	7.5	R198455FR	Frontyard	3.6
R198497BR	Backyard	13.5	R198453FR	Frontyard	2.8
R198499VR	Vacant Lot	11.6	R198479BR	Backyard	10.5
R198500BR	Backyard	17.2	R198452FR	Frontyard	4.2

Sample ID No.	Section of Property	Arsenic Results mg/kg	Sample ID No.	Section of Property	Arsenic Results mg/kg
R198486FR	Frontyard	7.2	R196228 NE	NE Quadrant	6.4
R196086BR	Backyard	9.1	R200218 FR	Frontyard	11.0

The removal action was conducted on 24 of the 25 residential properties where arsenic contamination in excess of 20 ppm was detected. One home owner refused access to EPA for the cleanup. The arsenic concentration at this property is 20.9 ppm, which is within EPA's acceptable health risk range and just slightly higher than the removal action level of 20 ppm. In view of the circumstances, EPA determined that use of enforcement authority to obtain access from the property owner was not appropriate.

Because the removal action did not result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for OU No. 3 of the Tex Tin site.

Enforcement Activities

The Tex Tin Site has a long and convoluted enforcement history; however, EPA has taken no enforcement action specifically related to Operable Unit No. 3.

In 1988, EPA issued an administrative order to the Tex Tin Corporation to limit access to the OU No. 1 smelter property by constructing and maintaining a fence around the entire facility. In 1990, Tex Tin Corporation and the adjacent landowner, Amoco Chemical Company (Amoco), entered into an Administrative Order on Consent with EPA to conduct a remedial investigation and feasibility study (RI/FS) for OU Nos. 1 and 2. In 1991, Tex Tin Corporation ceased operations at the facility and refused further compliance with the Administrative Order on Consent. The Remedial Investigation was completed by Amoco in 1993. The RI/FS work was suspended in 1993 when the site was taken off of the National Priorities List (NPL) by order of the U.S. Court of Appeals for the District of Columbia Circuit. EPA subsequently referred the Site to the Texas Water Commission, predecessor agency to the TNRCC.

In 1995, Amoco Chemical Company applied to the Texas Voluntary Cleanup Program (VCP) to clean up its 27-acre property, OU No. 2 of the Tex Tin Site. Amoco completed field work on OU No. 2 in June 1998 and received a Certificate of Completion from the TNRCC VCP Program on August 27, 1999.

After additional sampling conducted in 1994-1995, EPA in 1996 again proposed the Site, now including OU No. 3, for inclusion in the NPL. EPA also initiated an engineering evaluation and cost analysis report for OU No. 1. In May, 1996, Tex Tin Corporation and Amoco Chemical Company filed separate lawsuits against the United States and a number of private companies seeking contribution of CERCLA response costs incurred in conducting the Remedial

Investigation. The Department of Justice on behalf of the EPA filed counterclaims against the plaintiffs for CERCLA response costs expended by EPA. The district court consolidated the cases and later placed them on administrative closure when Tex Tin Corporation declared bankruptcy in February 1997. The cases were reinstated to active docket in August 1998. Settlement discussions and mediation among the parties have resulted in four different consent decrees between the State and Federal Governments and various combinations of private parties associated with the Site.

COMMUNITY PARTICIPATION

Public participation activities for OU No. 3 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 Supplemental Remedial Investigation Report and draft Baseline Human Health Risk Assessment Report were placed in the site repositories for public review on September 9, 1998, as part of the public comment period for the smelter facility, OU No. 1. The results of EPA's Time-Critical Removal Action are documented in the **Removal Funded Report (RFR) dated July 30, 1999**. The Administrative Record for the OU No. 3 Removal Action, including the RFR, was placed in the repositories by July 19, 2000. Additionally, prior to the start of the Time-Critical Removal Action, EPA held two open house meetings in March 1999 at the La Marque City Hall conference room to brief the community of the planned removal action activities and to answer questions regarding removal activities.

The Proposed Plan for OU No. 3 of the Tex Tin Site was released to the public on July 19, 2000. The notice of the availability of the Proposed Plan and the Administrative Record file for the remedial action was published in The Galveston County Daily News on July 18, 2000 and in the Texas City Sun on July 20, 2000. The public comment period was held from July 19, 2000 through August 17, 2000. A public meeting was held on August 3, 2000, to receive public comments and input from the community.

The EPA has evaluated oral and written comments submitted during the public comment period. While not germane to the selected remedy, one of the community concerns related to deletion of the La Marque residential area, OU No. 3, from the NPL. Several commentors requested that the site not be deleted from the NPL until cleanup of the smelter facility, OU No. 1, was completed, expressing concern about the potential for re-contamination in OU No. 3 during cleanup activities at the smelter facility.

Documents and information upon which EPA relied or considered in recommending the no further action alternative for OU No. 3 were made part of the Remedial Administrative Record file for the Tex Tin Site. The Remedial Administrative Record File was updated with documents concerning OU No. 3 on or before July 19, 2000, at the three site repositories: the EPA Region 6 offices at 1445 Ross Ave., Suite 1200, Dallas, Texas 75202; the Moore Memorial Public Library, 1701 Ninth Avenue North, Texas City, Texas 77590; and the Texas Natural Resource Conservation Commission, Technical Park Center, Building D, 2118 North IH-35, Austin, Texas 78711-3087.

This ROD presents EPA's decision that no further action is necessary for the residential properties of La Marque, OU No. 3 of the Tex Tin Site, to provide protection of human health and the environment. This decision is in accordance with CERCLA and consistent with the NCP. This decision is based on the Administrative Record for the Tex Tin site.

SCOPE AND ROLE OF OPERABLE UNIT

As noted above, EPA separated the Tex Tin Site into four (4) operable units to prioritize investigations, enforcement actions, and removal or remedial actions. The Site identified in 1990 consisted of Operable Units No. 1 and 2. Additional investigations by the State of Texas and EPA in 1994-95 led to the designation of Operable Unit No. 3. Operable Unit No. 4 was subsequently designated based on ecological risk investigations conducted in 1997 and 1998.

Operable Unit No. 1 consists of the former smelter facilities and process areas. The Record of Decision for OU No. 1 was signed on May 17, 1999. A group of settling defendants agreed to conduct the remedial design and remedial action for OU No. 1 in a consent decree entered by the court on August 4, 2000. By order of the court issued on June 9, the same group of settling defendants completed a removal action in which three structurally compromised buildings and ancillary structures were demolished. The removal action was completed in August, 2000. An Amended Proposed Plan for OU No. 1 was released to the public for review and comments on March 7, 2000. EPA held a public meeting on March 23, 2000 to take comments on the Amended Proposed Plan. EPA expects to issue the Amended Record of Decision for OU No. 1 in September 2000.

Operable Unit No. 2 includes 27 acres that were purchased by Amoco Chemical Company in 1969. Prior to the sale, the property was used to store waste acid from the smelter. Under the Texas Voluntary Cleanup Program and under a consent decree between Amoco and EPA, Amoco completed the cleanup of this portion of the Tex Tin site in June 1998. Based on information available to EPA at the present time, no further response action on OU No. 2 is expected.

OU No. 3 consists of the residential area in La Marque, Texas, located generally downwind from the OU No. 1 smelter facility. Properties having soil contaminated with heavy metals in excess of health-based levels within OU No. 3 were the subject of the 1999 Time-Critical Removal Action. The objectives of the removal action were to protect public health and to eliminate any immediate threat to human health from incidental ingestion, inhalation of airborne particulates, and direct contact with soils contaminated with elevated levels of arsenic associated with emissions from the Tex Tin smelter.

Prior to initiating the removal action, EPA conducted a Supplemental Remedial Investigation (SRI) and a Human Health Risk Assessment (HHRA) for the Tex Tin Site that also included the residential properties of La Marque. The RI and HHRA were conducted to determine the extent of contamination and long-term cleanup goals for the Tex Tin Site. This ROD presents EPA's decision that no further action is necessary for the residential properties of La Marque, OU No. 3, to protect human health and the environment.

Operable Unit No. 4 (OU No. 4) refers to the Swan Lake ecosystem located between the hurricane levee and the shell barrier islands separating Swan Lake from Galveston Bay and includes Swan Lake, its associated salt marsh habitats, and the Wah Chang ditch east of Loop 197. The focus for OU No. 4 is the impact of smelter contaminants, particularly heavy metals in sediments, to ecological receptors. EPA plans to complete the Feasibility Study for OU No. 4 in September 2000. Remedy selection for OU No. 4 should be completed before the end of 2000. The settling defendants who are conducting the response actions on OU No. 1 have conditionally agreed to pay for the OU No. 4 response action pursuant to the consent decree approved by the court on August 4, 2000.

SITE CHARACTERISTICS

From February 7 through 11, 1994, the TNRCC Superfund Site Discovery and Assessment Team conducted sampling activities in the residential areas located west-northwest of the Tex Tin smelter facility. Thirty four (34) soil samples were collected from residential and commercial properties in the area. All residential and commercial soil sampling locations were identified through X-Ray Fluorescence (XRF) field screening samples. Samples were analyzed for Target Analyte List (TAL) inorganics. TNRCC determined that residential properties in the LaMarque area had concentrations of arsenic three times greater than the background concentration of 5.7 mg/kg or parts per million (ppm). Based on its initial findings, TNRCC requested that EPA conduct a comprehensive assessment of the residential properties located near the Tex Tin site to determine the nature and extent of contamination.

In October, 1994, air dispersion modeling to estimate the potential extent of historical aerial emission impacts from the Tex Tin stack was completed by the EPA Region VI Technical Assistance Team. The modeling study estimates predicted that the majority of arsenic deposition would have occurred within a one-mile radius of the stack, with most deposition occurring to the north, north-west, west and south of the stack.

A comprehensive sampling assessment was performed by the Superfund Technical Assessment and Response Team (START) on behalf of EPA from November 1994 to January 1995, to characterize the nature and extent of arsenic and other priority pollutant metal contamination within properties adjacent to the OU No. 1 smelter facility. Five hundred-twenty five (525) composite soil samples were collected from a depth of 0 to 6 inches from 253 properties within the target area and screened for priority pollutant metals. The target area was determined from air modeling results. Analytical results from the sampling effort in each residential yard were provided individually to the resident of that property. At all residential yards, the frontyard and the backyard were sampled individually. A few residential locations had gardens which were sampled separately. Sampling results are tabulated below. NA means “Not Applicable” indicating that the residential location did not contain a garden or other sampling location, and that no additional information is available.

Residential Sampling Results

Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg	Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg
R196009	Frontyard	5.9	Backyard	8.5	R196217	Frontyard	9.9	Backyard	11.5
R196010	Frontyard	14.0	Backyard	12.4	R196219	Frontyard	11.3	Backyard	5.6
R196012	East	11.2	West	10.5	R196223	Frontyard	10.2	Backyard	8.4
R196014	Frontyard	12.2	Backyard	9.8	R196224	Frontyard	7.1	Backyard	5.4
R196015	Vacant Lot	4.2	NA	NA	R196225	Frontyard	5.3	Backyard	7.9
R196016	Frontyard	15.7	Backyard	2.2	R196226	Frontyard	4.1	Backyard	6.1
R196018	Frontyard	14.8	Backyard	18.3	R196227	Frontyard	9.7	Backyard	4.6
R196020	Frontyard	2.2	Backyard	7.7	R196230	West	11.3	South East	7.7
R196021	Frontyard	10.6	Backyard	15.4	R196237	Frontyard	17.2	Backyard	12.3
R196022	Frontyard	7.4	Backyard	15.3	R196239	Section C	11.8	Section B	15.6
R196023	Frontyard	6.0	Backyard	7.3	R196240	Frontyard	10.9	Backyard	10.0
R196026	Frontyard	8.0	Backyard	8.8	R196242	Vacant Lot	12.1	NA	NA
R196027	Frontyard	6.1	Backyard	7.4	R196243	Frontyard	3.3	Backyard	7.3
R196028	Frontyard	8.1	Backyard	8.9	R196244	Frontyard	3.9	Backyard	6.3
R196029	Frontyard	5.6	Backyard	5.9	R196245	Frontyard	5.0	Backyard	11.9
R196030	Frontyard	10.0	Backyard	6.9	R196247	Frontyard	14.9	Backyard East	14.4
R196031	Frontyard	5.5	Backyard	4.5	R196249	South	10.8	NA	NA
R196032	Frontyard	6.0	Backyard	7.2	R196250	Central	10.1	NA	NA
R196033	Frontyard	6.7	Backyard	7.1	R196251	Frontyard	11.2	Backyard	9.4
R196034	Frontyard	10.4	Backyard	9.4	R196252	Frontyard	12.5	Backyard	13.8
R196035	Frontyard	15.5	Backyard	14.7	R196254	Frontyard	18.6	Backyard	17.0
R196036	Frontyard	11.2	Backyard	15.0	R196258	Frontyard	12.4	Backyard	9.1
R196037	Frontyard	14.5	NA	NA	R196259	Frontyard	8.2	Backyard	9.6
R196038	Frontyard	12.3	Backyard	9.4	R196261	Frontyard	17.2	Backyard	12.3
R196039	Frontyard	16.1	Backyard	16.6	R196264	Frontyard	14.8	West	15.2
R196040	Vacant Lot	7.3	NA	NA	R196266	North	11.4	South	8.9
R196043	Frontyard	4.4	Backyard	8.9	R197800	East	11.7	West	9.5

Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg	Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg
R196044	Frontyard	6.2	Backyard	10.2	R198425	Frontyard	6.0	Backyard	5.6
R196046	Frontyard	10.3	Backyard	6.8	R198426	Frontyard	11.1	Backyard	8.9
R196047	Vacant Lot	8.6	NA	NA	R198427	Frontyard	10.2	Backyard	11.2
R196050	Frontyard	13.2	Backyard	16.1	R198428	Frontyard	10.6	Backyard	15.1
R196051	Frontyard	9.7	Backyard	6.2	R198429	Frontyard	6.6	Backyard	12.5
R196057	Frontyard	11.1	Backyard	11.7	R198430	Frontyard	9.2	Backyard	13.1
R196058	Frontyard	6.0	NA	NA	R198431	Frontyard	14.0	Backyard	14.8
R196060	Frontyard	8.4	Backyard	5.5	R198433	**Frontyard**	**21.9**	Backyard	16.8
R196062	Frontyard	10.4	Backyard	10.6	R198434	Frontyard	7.2	Backyard	6.3
R196063	Frontyard	10.3	Backyard	13.8	R198435	Frontyard	14.1	Backyard	13.3
R196065	Vacant Lot	6.7	NA	NA	R198436	**Frontyard**	**21.4**	Backyard	13.0
R196066	Frontyard	12.8	Backyard	14.2	R198437	Frontyard	9.8	Backyard	13.0
R196066	Frontyard	5.6	Backyard	14.2	R198438	Frontyard	17.8	Backyard	14.7
R196067	Frontyard	5.8	Backyard	3.0	R198439	Frontyard	8.6	Backyard	8.0
R196068	Frontyard	7.1	Backyard	5.3	R198440	Frontyard	12.3	Backyard	7.7
R196070	Frontyard	8.3	Backyard	7.9	R198441	Frontyard	8.4	Backyard	11.4
R196071	**Frontyard**	**21.0**	**Backyard**	**20.8**	R198442	Frontyard	13.0	Backyard	11.3
R196072	Frontyard	17.2	Backyard	19.8	R198443	Frontyard	13.2	Backyard	13.7
R196073	Frontyard	18.1	Backyard	9.9	R198444	Frontyard	18.7	NA	NA
R196074	**Frontyard**	**20.7**	Backyard	14.6	R198445	**Frontyard**	**22.7**	Backyard	16.1
R196075	Frontyard	14.5	Backyard	13.4	R198446	Frontyard	17.9	Backyard	19.6
R196077	**Frontyard**	**23.4**	Backyard	11.2	R198447	Frontyard	13.7	Backyard	17.2
R196078	**Frontyard**	**21.8**	Backyard	16.4	R198448	Frontyard	18.9	Backyard	16.5
R196079	Frontyard	18.1	Backyard	9.1	R198449	Frontyard	11.1	Backyard	10.9
R196080	Frontyard	12.1	Backyard	10.0	R198450	Frontyard	11.3	Backyard	7.9
R196081	**Frontyard**	**20.2**	Backyard	15.5	R198451	Frontyard	10.3	Backyard	12.4
R196082	Frontyard	14.2	**Backyard**	**20.2**	R198452	**Frontyard**	**20.6**	Backyard	11.6
R196083	Frontyard	16.3	Backyard	13.5	R198453	**Frontyard**	**20.0**	Backyard	15.3
R196084	Frontyard	17.5	Backyard	14.1	R198454	Frontyard	8.4	Backyard	9.8
R196085	Frontyard	19.7	**Backyard**	**24.4**	R198455	**Frontyard**	**30.4**	Backyard	16.0

Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg	Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg
R196086	Frontyard	12.6	Backyard	12.7	R198456	**Vacant Lot**	**20.8**	NA	NA
R196087	Frontyard	14.2	Backyard	7.5	R198457	**Frontyard**	**24.7**	Backyard	16.8
R196088	Frontyard	12.9	Backyard	12.9	R198458	Frontyard	14.2	Backyard	19.2
R196089	Frontyard	13.3	Backyard	9.1	R198461	Frontyard	11.3	Backyard	12.1
R196090	Frontyard	13.2	Backyard	16.9	R198463	Frontyard	7.6	Backyard	9.8
R196091	Frontyard	12.4	Backyard	12.8	R198464	Frontyard	14.7	Backyard	13.9
R196092	Frontyard	14.5	Backyard	12.2	R198465	Frontyard	17.2	Backyard	12.0
R196093	Frontyard	10.2	Backyard	8.9	R198466	**Frontyard**	**24.4**	Backyard	12.7
R196094	Frontyard	15.1	Backyard	11.7	R198467	Frontyard	6.1	Backyard	12.6
R196101	Frontyard	4.4	Backyard	6.5	R198468	Frontyard	16.1	Backyard	17.8
R196102	Frontyard	12.4	Backyard	13.6	R198469	Frontyard	9.3	Backyard	10.6
R196103	Frontyard	4.3	Backyard	4.7	R198470	Frontyard	8.2	Backyard	8.7
R196104	Frontyard	15.2	Backyard	14.5	R198471	**Frontyard**	**20.9**	Backyard	19.9
R196105	Frontyard	10.9	Backyard	15.3	R198472	Frontyard	12.3	Backyard	13.9
R196107	Frontyard	4.0	Backyard	4.5	R198473	Frontyard	10.2	Backyard	8.2
R196108	Vacant Lot	7.7	NA	NA	R198474	Frontyard	9.6	Backyard	10.6
R196110	Frontyard	11.8	Backyard	13.8	R198475	**Frontyard**	**21.3**	**Backyard**	**20.8**
R196111	Frontyard	15.4	Backyard	11.5	R198476	Frontyard	2.0	Backyard	9.8
R196112	Frontyard	9.5	Backyard	7.8	R198477	Frontyard	11.7	Backyard	9.4
R196113	Vacant Lot	4.1	NA	NA	R198478	Frontyard	6.5	Backyard	4.1
R196117	Frontyard	15.4	Backyard	11.9	R198479	Frontyard	13.3	**Backyard**	**20.5**
R196118	Frontyard	16.7	Backyard	14.1	R198480	Frontyard	16.3	Backyard	12.8
R196122	Frontyard	15.4	Backyard	14.7	R198481	Frontyard	15.8	Backyard	17.1
R196124	Frontyard	10.3	Backyard	14.8	R198483	Frontyard	8.8	Backyard	14.3
R196125	Frontyard	16.0	Backyard	14.2	R198484	Frontyard	6.9	Backyard	9.1
R196126	Frontyard	12.3	Backyard	8.6	R198485	Frontyard	11.4	Backyard	11.8
R196130	Vacant Lot	9.7	NA	NA	R198486	**Frontyard**	**24.3**	**Backyard**	**22.1**
R196133	Frontyard	5.3	Backyard	14.9	R198487	Frontyard	7.5	Backyard	14.8
R196134	Frontyard	1.2	Backyard	10.8	R198488	Frontyard	13.8	Backyard	15.1

Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg	Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg
R196135	Frontyard	3.0	Backyard	7.8	R198489	Frontyard	13.3	NA	NA
R196136	Frontyard	4.4	Backyard	6.5	R198490	Frontyard	9.7	Backyard	14.3
R196137	Vacant Lot	10.6	NA	NA	R198491	Frontyard	11.8	Backyard	10.4
R196147	Frontyard	12.6	Backyard	12.6	R198492	Frontyard	11.5	Backyard	14.8
R196150	Frontyard	9.0	Backyard	12.0	R198493	Frontyard	12.2	Backyard	18.0
R196151	Frontyard	9.8	Backyard	5.9	R198494	Frontyard	17.5	Backyard	19.7
R196152	Frontyard	5.5	Backyard	5.8	R198496	Frontyard	12.2	Backyard	16.4
R196154	Frontyard	10.4	Backyard	7.6	R198497	Frontyard	18.6	**Backyard**	**26.7**
R196178	Vacant Lot	9.8	NA	NA	R198499	**Vacant Lot**	**21.0**	NA	NA
R196179	Frontyard	7.9	Backyard	7.4	R198500	Frontyard	14.0	**Backyard**	**20.9**
R196181	Frontyard	15.7	Backyard	13.5	R200207	Frontyard	7.8	Backyard	6.4
R196182	Frontyard	6.3	Backyard	9.0	R200208	Frontyard	6.5	Backyard	6.7
R196186	Frontyard	13.3	NA	NA	R200209	Frontyard	8.9	Backyard	7.6
R196187	Frontyard	10.2	Backyard	16.8	R200210	Frontyard	8.5	Backyard	7.3
R196191	Frontyard	3.9	Backyard	2.5	R200212	Frontyard	9.3	Backyard	6.3
R196192	Frontyard	12.0	Backyard	8.2	R200213	Frontyard	13.4	Backyard	9.9
R196195	Frontyard	13.2	Backyard	12.0	R200214	Frontyard	6.9	Backyard	6.6
R196196	Frontyard	8.0	NA	NA	R200215	Frontyard	9.8	Backyard	12.6
R196197	Frontyard	7.3	Backyard	7.5	R200216	Frontyard	11.4	Backyard	15.5
R196198	Frontyard	10.1	NA	NA	R200217	Frontyard	9.3	Backyard	6.8
R196202	Frontyard	16.2	Backyard	8.4	R200218	**Frontyard**	**20.8**	Backyard	8.1
R196207	Frontyard	12.8	Backyard	13.8	R200219	Frontyard	9.0	Backyard	8.0
R196208	Frontyard	11.7	Backyard	16.9	R200220	Frontyard	13.8	Backyard	9.3
R196209	Frontyard	9.9	Backyard	5.3	R200221	Frontyard	9.4	Backyard	11.2
R196211	Frontyard	7.7	Backyard	4.2	R200222	Frontyard	10.7	Backyard	9.7
R196212	Frontyard	9.9	Backyard	13.1	R291184	Vacant Lot	9.3	NA	NA
R196215	Frontyard	12.7	Backyard	13.4	R358550	Frontyard	5.5	Backyard	8.5
R196216	Frontyard	5.4	Backyard	3.9					

Property ID	Sample 1	Arsenic mg/kg	Sample 2	Arsenic mg/kg	Sample 3	Arsenic mg/kg	Sample 4	Arsenic mg/kg
R196076	Frontyard	18.5	Backyard	16.1	Garden	13.9	NA	NA
R196095	West	7.0	East	6.8	South	6.7	NA	NA
R196096	Frontyard	10.3	Backyard	13.1	South	16.3	NA	NA
R196100	Frontyard	11.7	Backyard	12.5	East	13.2	NA	NA
R196115	North	6.7	South East	14.7	South West	8.3	NA	NA
R196129	**Central**	**20.4**	West	17.7	East	16.2	NA	NA
R196141	Frontyard	13.0	Backyard	13.9	South	15.4	North	8.8
R196145	Frontyard	11.8	Backyard	7.2	Garden	9.2	NA	NA
R196148	Frontyard	9.5	Backyard	14.5	Garden	12.0	NA	NA
R196149	Frontyard	12.3	Backyard	9.8	Garden	12.6	NA	NA
R196175	North	11.0	East	7.6	West	8.8	NA	NA
R196184	Frontyard	9.5	Backyard	8.1	Garden	6.0	NA	NA
R196188	Frontyard	18.8	Backyard	14.2	West	12.7	East	7.8
R196200	Frontyard	8.9	Backyard	8.1	West	2.8	NA	NA
R196220	Frontyard	5.5	Backyard	11.6	Garden 1	11.2	Garden 2	5.4
R196221	Frontyard	5.7	Backyard	8.4	Garden	7.4	NA	NA
R196228	**North East**	**25.5**	South East	8.2	South West	6.1	North West	4.6
R196232	West	10.3	Central	9.6	East	9.2	NA	NA
R196233	Section A	7.8	Section B	12.1	Section C	9.2	NA	NA
R196239	Section A	8.4	Section B	15.6	Section C	11.8	NA	NA
R196250	East	10.5	Central	10.1	West	11.3	NA	NA
R196257	Frontyard	11.3	Backyard	8.8	Garden	12.9	NA	NA
R197801	East	8.4	West	8.8	Central	13.0	NA	NA
R198432	Frontyard	9.5	Backyard	8.8	Garden	12.2	Garden	8.6
R198459	Frontyard	14.8	Backyard	10.4	Garden	8.9	NA	NA
R198495	Frontyard	9.3	Backyard	7.8	Garden	10.4	NA	NA

Subsurface samples were not collected in the residential properties because smelter contamination resulted from air emissions. Metals are not very mobile and bind to soil particles and therefore the contaminants remain close to the surface where they are deposited. Additionally, the exposure route risks for human receptors are ingestion, inhalation and dermal contact. In the residential areas, the exposure pathway to contaminants is found in surface soils. The removal action excavations confirmed that the highest concentration of contaminants were found in surface soils.

CURRENT AND POTENTIAL FUTURE LAND USE

The current land use for OU No. 3 of the Tex Tin Superfund Site is residential. Based on location within the community, the future use for the properties cleaned up in the Time-Critical Removal Action is expected to remain residential; thus the properties were cleaned up to eliminate risk to human health based on a conservative residential exposure scenario.

SUMMARY OF SITE RISKS PRIOR TO REMOVAL ACTION

EPA evaluated specific site risks by conducting remedial investigations and preparing a Baseline Human Health Risk Assessment (BHHRA) for the Tex Tin site to determine the sources and extent of contamination and the cleanup goals for long-term protection of human health and the environment. The BHHRA for the Tex Tin site was completed in March 1997. The residential properties of La Marque, OU No. 3, were also included in the investigations and risk assessment conducted for the site. As part of the supplemental remedial investigation for the Tex Tin site, 253 residential properties in La Marque were sampled to determine the extent of contamination resulting from smelter emissions. These sampling results identified 25 residential properties with arsenic that exceeded the removal action level of 20 ppm and became the focus of the Time-Critical Removal Action.

Chemicals of Potential Concern (COPCs) identified for the Tex Tin Site as a whole included: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, tin, vanadium, and zinc. For the residential properties of La Marque, arsenic contributed over 90% of the cancer risk and therefore was the contaminant sampled for during the removal action

In the risk assessment, (which was conducted prior to the removal action) a current residential scenario was evaluated for the La Marque residential neighborhood located northwest of the smelter site. For the current resident, data from soil from a depth interval of 0 to 6 inches were used to evaluate incidental ingestion of surface soil, dermal contact with surface soil, inhalation of particulates, and ingestion of homegrown produce.

In the BHHRA, current residents were chosen as the potential receptors for both the Reasonable Maximum Exposure (RME) and the Central Tendency Exposure (CTE) scenarios based on current residential land use in the area. The current residents were assumed to be exposed to soil during outdoor activities such as gardening, yard work, and recreational activities. For the exposure frequency, a year round exposure to soil of 350 days per year was assumed for the RME

and the CTE scenarios. The exposure duration for the RME scenario was assumed to be 30 years based on the national upper 90th percentile estimate of time spent at one residence. For the 30-year exposure duration, the RME resident was assumed to be exposed for 6 years as a child and 24 years as an adult. The exposure duration for the CTE scenario was assumed to be 9 years, which represents the average estimate of time spent at one residence. For the 9-year exposure duration, the CTE resident was assumed to be exposed for 2 years as a child and 7 years as an adult.

Exposure Pathway	Scenario	Receptor	Exposure Routes	Samples Used
Residential Surface Soils	Current land use	RME and CTE: Child and Adult resident	- Incidental ingestion - Dermal Contact - Inhalation of particulates - Ingestion of homegrown produce.	Surface soil samples

In the BHHRA, the equation and assumptions for calculating doses from the incidental ingestion of residential soil assumes (uses) a soil ingestion rate of 200 mg/day for the child resident and an ingestion rate of 100 mg/day for the adult residents.

$$\text{Dose for Soil Ingestion (mg/kg-day)} = \frac{CS \times IR \times CF \times EF \times ED}{BW \times AT}$$

CS = Chemical concentration in soil (mg/kg)
IR = Soil ingestion rate (mg/day)
CF = Conversion factor (kg/mg)
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AV = Averaging time (days)

Scenario Exposure Assumptions

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
CS	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil
IR	200 mg/day	200 mg/day	100 mg/day	100 mg/day
CF	10^{-6} kg/mg	10^{-6} kg/mg	10^{-6} kg/mg	10^{-6} kg/mg
EF	350 days/year	350 days/year	350 days/year	350 days/year
ED	2 years (est.)	6 years	7 years (est.)	24 years
BW	15 kg	15 kg	70 kg	70 kg
AT noncancer	2 yrs x 365 days/yr	6 yrs x 365 days/yr	7 yrs x 365 days/yr	24 yrs x 365 days/yr

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
AT cancer	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr

UCL - Upper Confidence Limit

In the BHHRA, the equation and assumptions for calculating doses from dermal contact with residential soil uses a skin surface of 1,800 square centimeters for the child and 5,000 square centimeters for adult residents for both the RME and CTE scenarios. These surface areas represent 25% of the mean total body surface areas for a child and an adult and represent exposure to hands, legs, arms, neck, and head.

$$\text{Dose from Dermal Contact with Soil (mg/kg-day)} = \frac{CS \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

CS = Chemical concentration in soil (mg/kg)
CF = Conversion factor (kg/mg)
SA = Skin surface area available for contact (cm^2/day)
AF = Soil-to-skin adherence factor (mg/cm^2)
ABS = Dermal absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

Scenario Exposure Assumptions

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
CS	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil
CF	10^{-6} kg/mg	10^{-6} kg/mg	10^{-6} kg/mg	10^{-6} kg/mg
SA	1800 cm^2/day (est.)	1800 cm^2/day	5000 cm^2/day (est.)	5000 cm^2/day
AF	0.2 mg/cm^2	1 mg/cm^2	0.2 mg/cm^2	1 mg/cm^2
ABS	Chemical Specific Default Values 0.1 organics 0.001 inorganics	Chemical Specific Default Values 0.1 organics 0.001 inorganics	Chemical Specific Default Values 0.1 organics 0.001 inorganics	Chemical Specific Default Values 0.1 organics 0.001 inorganics
EF	350 days/year	350 days/year	350 days/year	350 days/year
ED	2 years (est.)	6 years	7 years (est.)	24 years
BW	15 kg	15 kg	70 kg	70 kg
AT noncancer	2 yrs x 365 days/yr	6 yrs x 365 days/yr	7 yrs x 365 days/yr	24 yrs x 365 days/yr

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
AT cancer	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr

UCL - Upper Confidence Limit

The residential areas of La Marque are primarily covered with vegetation (grass lawns) that restrict dust generation. Therefore, in the BHHRA, the equation and assumptions for calculating doses from the inhalation of particulates released from soil uses the recommended default PEF value of 1.32E+09 cubic meters per kilogram, which assumes 50% vegetative cover. Inhalation rates of 5 and 20 cubic meters per day were used for the child and adult residents, respectively. These values were used for both the RME and CTE scenarios.

Dose from Inhalation of Particulates
Released from Soil (mg/kg-day) = $\frac{CS \times (1/PEF) \times IR \times EF \times ED}{BW \times AT}$

CS = Chemical concentration in soil (mg/kg)
PEF = Particulate emission factor (m^3/kg)
IR = Inhalation rate (m^3/day)
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

Scenario Exposure Assumptions

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
CS	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil	95% UCL in Soil
PEF	1.32E+09 m^3 /kg	1.32E+09 m^3 /kg	1.32E+09 m^3 /kg	1.32E+09 m^3 /kg
IR	5 m^3/day	5 m^3/day	20 m^3/day	20 m^3/day
EF	350 days/year	350 days/year	350 days/year	350 days/year
ED	2 years (est.)	6 years	7 years (est.)	24 years
BW	15 kg	15 kg	70 kg	70 kg
AT noncancer	2 yrs x 365 days/yr	6 yrs x 365 days/yr	7 yrs x 365 days/yr	24 yrs x 365 days/yr
AT cancer	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr

UCL - Upper Confidence Limit

In the BHHRA, exposure to site contaminants through the ingestion of garden vegetables and

fruits grown in contaminated soils was evaluated for the current and future child and adult resident. The equation and assumptions that were used to calculate intakes through ingestion of homegrown produce were evaluated for both the RME and CTE scenarios. Recommended values of 42 g/day for consumption of homegrown fruit and 80 g/day for consumption of homegrown vegetables were used for adults. Consumption rates of 25 g/day for homegrown fruit and 48 g/day for homegrown vegetables were calculated for the child (1 to 6 years old) resident. The consumption rates for leafy and root vegetables for the adult resident were calculated to be 36 g/day and 44 g/day, respectively. The consumption rates for leafy and root vegetables for the child resident were calculated to be 17 g/day and 31 g/day, respectively.

$$\text{Dose from consumption of Homegrown Produce (mg/kg-day)} = \frac{(CL \times IRL + CFR \times IRF + CR \times IRR) \times (CF \times FI \times EF \times ED)}{BW \times AT}$$

CL = Chemical concentration in leafy vegetables (mg/kg)
IRL = Leafy vegetable ingestion rate (g/day)
CFR = Chemical concentration in garden fruits (mg/kg)
IRF = Garden fruit ingestion rate (g/day)
CR = Chemical concentration in root vegetables (mg/kg)
IRR = Root vegetable ingestion rate (g/day)
CF = Conversation factor (kg/g)
FI = Fraction of homegrown produce ingested from the contaminated source (unitless)
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

Scenario Exposure Assumptions

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
CL	95% UCL in leafy vegetables (mg/kg)	95% UCL in leafy vegetables (mg/kg)	95% UCL in leafy vegetables (mg/kg)	95% UCL in leafy vegetables (mg/kg)
IRL	17 g/day. Based on data for 3-5 year old males and females.	17 g/day. Based on data for 3-5 year old males and females.	36 g/day. Based on data for 19-34 year old males.	36 g/day. Based on data for 19-34 year old males.
CFR	95% UCL in garden fruits (mg/kg)	95% UCL in garden fruits (mg/kg)	95% UCL in garden fruits (mg/kg)	95% UCL in garden fruits (mg/kg)
IRF	25 g/day. Based on data for 3-5 year old males and females.	25 g/day. Based on data for 3-5 year old males and females.	42 g/day	42 g/day
CR	95% UCL in root vegetables (mg/kg)	95% UCL in root vegetables (mg/kg)	95% UCL in root vegetables (mg/kg)	95% UCL in root vegetables (mg/kg)

Parameter	Child CTE	Child RME	Adult CTE	Adult RME
IRR	31 g/day. Based on data for 3-5 year old males and females.	31 g/day. Based on data for 3-5 year old males and females.	44 g/day. Based on data for 19-34 year old males.	44 g/day. Based on data for 19-34 year old males.
CF	10^{-3} kg/g	10^{-3} kg/g	10^{-3} kg/g	10^{-3} kg/g
FI	0.5 (est.)	1 (est.)	0.5 (est.)	1 (est.)
EF	350 days/year	350 days/year	350 days/year	350 days/year
ED	2 years (est.)	6 years	7 years (est.)	24 years
BW	15 kg	15 kg	70 kg	70 kg
AT noncancer	2 yrs x 365 days/yr	6 yrs x 365 days/yr	7 yrs x 365 days/yr	24 yrs x 365 days/yr
AT cancer	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr	70 yrs x 365 days/yr

UCL - Upper Confidence Limit

WHAT IS RISK AND HOW IS IT CALCULATED

A Superfund human health risk assessment estimates the "baseline risk." This is an estimation of the likelihood of problems occurring if no cleanup action were taken at a site. To estimate the baseline risk at a Superfund site, EPA undertakes a four-step process:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers
Step 4: Characterize Site Risk

In Step 1, EPA looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies helps EPA to determine which contaminants are most likely to pose the greatest threat to human health.

In Step 2, EPA considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency and duration of exposure. Using this information, EPA calculates a "reasonable maximum exposure" (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur.

WHAT IS RISK AND HOW IS IT CALCULATED (cont.)

In Step 3, EPA uses the information from Step 2 combined with information on the toxicity of each chemical to assess potential health risks. EPA considers two types of risk: cancer risk and non-cancer risk. To protect human health, EPA has set the range from one in ten thousand to one in one million lifetime excess cancer incidents as the acceptable exposure levels for Superfund sites. A risk of one in one million means that one person out of one million people could be expected to develop cancer as a result of a lifetime exposure to the Site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. For non-cancer health effects, EPA calculates a "hazard index." The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which non-cancer health effects are no longer predicted.

In Step 4, EPA determines whether site risks are great enough to cause health problems for people at or near the Superfund site. The results of the three previous steps are combined, evaluated and summarized. EPA adds up the potential risks from the individual contaminants and exposure pathways and calculates a total site risk.

Cancer Slope and Carcinogenicity Classifications for Inorganic Chemicals

Chemical	Carcinogenicity classification	Oral Slope Factor $(mg/kg\text{-}day)^{-1}$	Dermal Slope Factor $(mg/kg\text{-}day)^{-1}$	Inhalation Slope Factor $(mg/kg\text{-}day)^{-1}$
Arsenic	A (Known Human Carcinogen)	1.5E+00	7.5E+00	1.5E+01
Beryllium	B2 (Probable Human Carcinogen)	4.3E+00	8.6E+01	8.4E00
Cadmium	B1 (Probable Human Carcinogen)	NTV	NTV	6.4E+00
Chromium VI	A (Known Human Carcinogen)	NTV	NTV	4.2E+01
Lead	B2 (Probable Human Carcinogen)	NTV	NTV	NTV
Mercury	C (Possible Human Carcinogen)	NTV	NTV	NTV
Nickel	A (Known Human Carcinogen)	NTV	NTV	8.4E-01

NTV - No toxicity value available.

Chronic Reference Doses

Chemical	Chronic Oral Reference Dose (mg/kg-day)	Chronic Dermal Reference Dose (mg/kg-day)	Chronic Inhalation Reference Dose (mg/kg-day)
Antimony	4.0E-04	2.0E-05	NTV
Arsenic	3.0E-4	6.0E-05	NTV
Barium	7.0E-2	3.5E-03	1.0E-04
Beryllium	5.0E-03	2.5E-04	NTV
Cadmium	1.0E-03	5.0E-05	NTV
Chromium III	1.0E+00	5.0E-02	NTV
Chromium VI	5.0E-03	2.5E-04	NTV
Cobalt	NTV	NTV	NTV
Copper	3.7E-02	1.9E-03	NTV
Lead	NTV	NTV	NTV
Manganese	1.4E-01 (food) 4.7E-02 (nondietary)	NA 2.4E-03	NTV 1.4E-05
Mercury (inorganic)	3.0E-4	1.5E-05	8.6E-05
Methyl mercury	1.0E-4	NA	NA
Molybdenum	5.0E-03	2.5E-04	NTV
Nickel	2.0E-02	1.0E-03	NTV
Selenium	5.0E-03	2.5E-04	NTV
Silver	5.0E-03	2.5E-04	NTV
Tin	6.0E-1	3.0E-02	NTV
Vanadium	7.0E-03	3.5E-04	NTV
Zinc	3.0E-01	1.5E-02	NTV

NA - Not applicable
NTV - No toxicity value available.

Subchronic Reference Doses

Chemical	Subchronic Oral Reference Dose (mg/kg-day)	Subchronic Dermal Reference Dose (mg/kg-day)	Subchronic Inhalation Reference Dose (mg/kg-day)
Antimony	4.0E-04	2.0E-05	NTV

Chemical	Subchronic Oral Reference Dose (mg/kg-day)	Subchronic Dermal Reference Dose (mg/kg-day)	Subchronic Inhalation Reference Dose (mg/kg-day)
Arsenic	3.0E-04	6.0E-05	NTV
Barium	7.0E-02	3.5E-03	1.0E-03
Beryllium	5.0E-03	2.5E-04	NTV
Cadmium	1.0E-03	5.0E-05	NTV
Chromium III	1.0E+00	5.0E-02	NTV
Chromium VI	2.0E-02	1.0E-03	NTV
Cobalt	NTV	NTV	NTV
Copper	3.7E-02	1.9E-03	NTV
Lead	NTV	NTV	NTV
Manganese	1.4E-01 (food) 4.7E-02 (nondietary)	NA 2.4E-03	NA 1.4E-05
Mercury	3.0E-04	1.5E-05	8.6E-05
Molybdenum	5.0E-03	2.5E-04	NTV
Nickel	2.0E-02	1.0E-03	NTV
Selenium	5.0E-03	3.5E-04	NTV
Silver	5.0E-03	2.5E-04	NTV
Tin	6.0E-01	3.0E-02	NTV
Vanadium	7.0E-03	3.5E-04	NTV
Zinc	3.0E-01	1.5E-02	NTV

NA - Not applicable
NTV - No toxicity value available

Carcinogenic Risk

Carcinogenic risk is calculated by multiplying the estimated daily intake (EDI) that is averaged over a lifetime (lifetime-averaged dose) by a compound and exposure route-specific (oral, dermal, or inhalation) cancer slope factor (CSF).

Cancer Risk = EDI x CSF

EDI = Estimated daily intake (intake averaged over a 70-year lifetime) (mg/kg-day)
CSF = Chemical and route-specific cancer slope factor $(mg/kg\text{-}day)^{-1}$

The combined potential upper-bound cancer risk for a particular exposure route is then estimated

by summing the risk estimates for all the COPCs for that route. The total potential upper-bound cancer risk to an individual member of a receptor population is estimated by summing the combined cancer risks for all chemicals from all relevant exposure routes. The National Contingency Plan (NCP) establishes an excess cancer risk of 1E-06 as a "point of departure" for establishing remediation goals. Excess cancer risks in the range of 1E-04 (one-in-ten-thousand) to 1E-06 (one-in-one-million) are considered acceptable, depending on site-specific factors such as the potential for exposure, technical limitations of remediation, and data uncertainties.

Noncarcinogenic Risk

Noncarcinogenic health effects are evaluated by calculating hazard quotients and hazard indices. This is accomplished by comparing the estimated daily intakes of the COPCs, which are averaged over the period of exposure, to chemical and route-specific reference doses (RfDs). The RfD represents the daily intake of a chemical to which a receptor can be exposed over a given length of time without any reasonable expectation of adverse noncarcinogenic health effects. The hazard quotient (HQ) for a particular chemical is the ratio of the estimated daily intake through a given exposure route to the applicable RfD.

HQ = EDI/RfD

HQ = Hazard quotient
EDI = Estimated daily intake (averaged over the exposure period) (mg/kg-day)
RfD = Reference dose (mg/kg-day)

The hazard quotients determined for each COPC by exposure route (oral, dermal, inhalation) are summed within an exposure scenario to obtain a total hazard index (HI). The HI is an expression of the additivity of noncarcinogenic health effects. Since the RfDs determined for the multiple chemicals in a given exposure scenario usually represent a range of target organs or systems, the calculated HI is conservative.

The methodology used to evaluate noncarcinogenic risk, unlike the methodology used to evaluate carcinogenic risk, is not a measure of quantitative risk. The HQ or HI is not a mathematical prediction of the incidence or severity of those effects. If the HQ or HI exceeds unity (one), there might be a potential for noncarcinogenic health effects occurring under the defined exposure conditions. However, the calculation of an individual RfD assumes a margin of safety, and the range of RfDs for a series of chemicals in an exposure scenario can potentially represent a number of individuals toxic endpoints. Therefore, an HQ or HI of greater than one does not necessarily indicate that an adverse noncarcinogenic effect is likely to occur. Furthermore, an HI of less than or equal to one indicates that it is unlikely for even sensitive populations to experience adverse noncarcinogenic health effects.

Site Risks Prior to Removal Action

A total carcinogenic risk of 9.0E-05 was calculated for the current (prior to removal action)

resident in the La Marque area. The risk is based on exposure as both a child and an adult. For each scenario the majority of the risk was due to incidental ingestion of residential yard soil, approximately 59% to 74%. Arsenic was the COPC that contributed the majority of the risk, approximately 93% for each scenario.

Exposure Pathway Scenario	Receptor	Chemical	Cancer Risk	Percent	Exposure Route	Cancer Risk	Percent
Current (Prior to removal action) Residential Surface Soil	RME Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	8.5E-05	93.92	Surface Soil	5.3E-05	58.60
		Beryllium	5.5E-06	6.07			
					Homegrown Produce	3.7E-05	41.36
Current (Prior to removal action) Residential Surface Soil	CTE Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	2.1E-05	92.91	Surface Soil	1.7E-05	74.28
		Beryllium	1.6E-05	7.08			
					Homegrown Produce	5.9E-06	25.67

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Total hazard indices of 2.6 and 1.2 were calculated for the current child resident and current adult resident, respectively. These hazard indices exceeded the benchmark of concern of one. The exposure routes that exceeded a hazard index of one, for child residential scenario only, were the ingestion of homegrown produce and the ingestion of residential soil. Arsenic was the only COPC that exceeded the benchmark of concern, contributing approximately 44% to 51% of the total hazard index.

Exposure Pathway Scenario	Receptor	Chemical	Hazard Index	Percent	Exposure Route	Hazard Index	Percent
Current (Prior to removal action) Residential Surface Soil	RME Current Resident	Inorganics			Incidental Ingestion of		
		Arsenic	1.2	43.76	Surface Soil	1.3	51.05
					Homegrown Produce	1.3	48.82

Exposure Pathway Scenario	Receptor	Chemical	Hazard Index	Percent	Exposure Route	Hazard Index	Percent
Current (Prior to removal action) Residential Surface Soil	CTE Current Resident	Inorganics Arsenic	 1.0	 50.89	Incidental Ingestion of Surface Soil	 1.3	 67.54

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Risk Summary Table

Area/Scenario	Total Hazard Index Excluding Dermal Contact		Total Hazard Index Including Dermal Contact		Total Cancer Risk Excluding Dermal Contact		Total Cancer Risk Including Dermal Contact	
Residential Yards	RME	CTE	RME	CTE	RME	CTE	RME	CTE
(Prior to removal action)								
Current Adult	1.2	0.9	1.3	0.9	9.0E-05	2.3E-05	9.7E-05	2.3E-05
Current Child	2.6	2.0	2.8	2.0	--------	--------	---------	--------

Note:
RME - Reasonable Maximum Exposure (measure of high-end exposure)
CTE - Central Tendency Exposure (measure of average exposure)
Cancer risk is total lifetime risk based on exposure as a child and adult

Blood Lead Levels in Children

In the BHHRA for the site, the Integrated Exposure Uptake Biokinetic (IEUBK) model for lead in children was used to evaluate the risks posed to young children as a result of lead contamination at OU No. 3. Because lead does not have a nationally approved reference dose (RfD), slope factor, or other accepted toxicological factor which can be used to assess risk, standard risk assessment methods cannot be used to evaluate the health risks associated with lead contamination. The IEUBK model was used to predict blood-lead effects for children up to 7 years old. The IEUBK model uses site-specific or default concentrations of lead in environmental media to estimate blood lead levels in children. Risk from exposure of children to lead in soil within OU No. 3 was evaluated by comparing the blood lead distributions estimated using the IEUBK model to the level of concern of 10 ：g/dL established by the Centers for Disease Control (CDC). Results of the IEUBK model predicted a mean blood lead level of 3.1 ：g/dL for children in the La Marque residential area. The modeled blood lead distributions (assuming a geometric standard deviation) indicated that less than one percent of the population exposed to lead in soils are expected to have blood lead levels greater than 10 ：g/dL. This is well within CDC's goal that

no more than 5% of the child population exceed the 10 ：g/dL blood lead level (the CDC blood lead level of concern).

Action Level for Arsenic

Arsenic concentrations in the residential samples collected in 1995 ranged from 1.2 ppm to 30.4 ppm. Twenty-five (25) residential yards exceeded the removal action level of 20 ppm arsenic. This removal action level for arsenic is a conservative risk-based level which is commonly used to address arsenic in soil in residential areas. TNRCC has adopted a policy standard (Memorandum dated May 19, 1995) of 20 ppm for cleanup of arsenic in residential areas based on soil exposure. The removal action cleanup level is within EPA's acceptable human health risk levels for a residential setting.

DOCUMENTATION OF SIGNIFICANT CHANGES FROM PROPOSED PLAN

The Proposed Plan for OU No. 3 of the Tex Tin Site was released for public comment on July 19, 2000; comments were accepted through August 17, 2000. The Proposed Plan presented the no further action alternative as the Preferred Alternative for this operable unit, because the appropriate response action had been completed as a Time-Critical Removal Action. EPA reviewed all written and oral comments submitted during the public comment period, and determined that no significant changes to the alternative originally identified in the Proposed Plan were necessary.

STATUTORY DETERMINATION: NO FURTHER REMEDIAL ACTION

No further remedial action is necessary at this operable unit because the removal action as implemented in 1999 is protective of human health and the environment. The removal action eliminated the source of contamination, and thus the human and environmental exposure pathways. The removal action provides long-term protection by permanently removing arsenic found in soil above the action level at 24 of 25 residential properties. The arsenic level in the remaining property, 20.9 ppm, was slightly above the action level but within an acceptable risk-based level. Five-year reviews will not be required for OU No. 3 of the Tex Tin Site because hazardous substances above levels that allow for unlimited use and unrestricted exposure no longer remain onsite.

RECORD OF DECISION FOR
TEX TIN CORPORATION SUPERFUND SITE
OPERABLE UNIT NO. 3
RESPONSIVENESS SUMMARY

The United States Environmental Protection Agency (EPA) has prepared this Responsiveness Summary for the Tex Tin Corporation Superfund Site (Tex Tin Site), as part of the process for making final remedial action decisions for Operable Unit No. 3 (OU No. 3). This Responsiveness Summary documents, for the Administrative Record, public comments and issues raised during the public comment period on EPA's recommendation presented in the Proposed Plan which stated that no further remedial action was necessary for the residential areas of La Marque, Texas, Tex Tin OU No. 3 site. This responsiveness summary provides EPA's responses to those comments. EPA's actual decision for OU No. 3 is detailed in the Record of Decision (ROD) for OU No. 3. Pursuant to Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9617, EPA has considered all comments received during the public comment period in making the final decision contained in the ROD for OU No. 3.

Overview of Public Comment Period

EPA issued its Proposed Plan detailing remedial action recommendations for OU No. 3 for public review and comment on July 19, 2000. Documents and information EPA relied on in making its recommendation in the Proposed Plan were made available to the public on or before July 19, 2000 in three Administrative Record File locations, including the Moore Public Library located in Texas City, Texas. EPA provided thirty days for public comment. EPA held a public meeting to receive comments and answer questions on August 3, 2000, at the La Marque City Community Room, La Marque, Texas. The transcript of oral comments and the one written comment received during the public comment period are included in the Administrative Record for OU No. 3 and are available at the three Administrative Record repositories.

Summary of Public Comments and EPA Responses

Introduction

EPA responses to comments received during the public meeting are provided below and in some cases include subsequent expanded responses to those comments as appropriate. The one written comment sent by mail dated August 17, 2000 is similar to a comment made at the public meeting and is addressed in the EPA responses provided below. The purpose of the public meeting held at the La Marque City Community Room, La Marque, Texas, on August 3, 2000, was to present EPA's recommendation that no further remedial action is necessary in the residential areas of La Marque as a result of the removal action that was conducted by EPA in March of 1999 through June of 1999. The removal action was conducted at those residential properties that exceeded the removal action level of 20 milligrams per kilogram (mg/kg) or parts per million (ppm) of arsenic. Those properties were identified when a comprehensive investigation was conducted in late 1994

and 1995 where 253 properties were sampled. That sampling event identified those yards that were above the removal action level of 20 ppm. Out of those 25 residential properties, 24 were cleaned up. One resident refused to grant access to conduct the cleanup. The cleanup consisted of excavating contaminated soil, removal and disposal to a permitted landfill, backfilling with clean soil, and reestablishing grass.

Based on the results of the removal action, EPA determined that no further remedial action was warranted. Therefore, EPA is recommending no further action for the residential properties in La Marque, Texas.

Public Comments and EPA Responses

COMMENT: Well, all I've got to say is: I can't understand -- you were talking about they cleaned up 25 yards up in our neighborhood? Well, according to some other people, there was a lot more cleaned up than that. But I can't understand why my neighbor's front yard was cleaned up right to my walkway and didn't touch my yard, and you know dang good and well that dirt, when it rains, it's going to wash, and it's going to come over into my yard. And they did not replace all the stuff in the yards, like the trees and the plants and all that. They just dug around them. Isn't that dirt under them contaminated? I mean, be reasonable.

EPA RESPONSE: The cleanup was based on yards that exceeded 20 parts per million (ppm) arsenic. Sampling of 253 yards in La Marque identified 25 yards exceeding the removal action level of 20 ppm arsenic and 24 yards were cleaned up since one resident did not give us access to clean his yard. The contamination resulted from air deposition and was found exceeding the removal action levels in the upper six inches. Trees and plants did not need to be removed as part of the cleanup because the plants do not constitute a health hazard. Other yards also may have received arsenic emissions from the smelter plant but not at levels that would be considered hazardous and therefore did not require soil removal. Yards that were cleaned up were backfilled with clean soil.

COMMENT: There's one neighbor out there that had a garden, and all they done -- they dug right up to it, and they didn't dig under that or nothing else.

EPA RESPONSE: Gardens were sampled separate from the yard sampling. Samples collected from residential gardens did not exceed the removal action level of 20 ppm arsenic and therefore did not require cleanup.

COMMENT: It appears that EPA believes it has the authority to waive third-party liability. I'm going to suggest to EPA that before they close this site effectively, that they wait until all remedial – all purported remedial work is completed and an independent third party has had an opportunity to inspect it and review the documents. That's my recommendation to EPA.

EPA RESPONSE: EPA activities and documents are open for inspection and review at all times

and will be for many years after all work has been completed. Regarding waiver of third-party liability, you may be referring to CERCLA Section 113(f)(2), which is not, strictly speaking, a waiver provision, but states that a person who has resolved his liability to the United States or a State in an administrative or judicially approved settlement shall not be liable for claims for contribution regarding matters addressed in the settlement. Such settlement does not discharge any of the other potentially liable persons unless its terms so provide, but it reduces the potential liability of the others by the amount of the settlement. 42 U.S.C. §9613(f)(2).

COMMENT: When I first came and made comments more than a year ago, my concern was that the EPA had, in fact, not defined the area except politically, the area of contamination, the depth of contamination, and it said it used the best available technology. The National Environmental Policy Act of 1969 requires appropriate members of the Federal agencies to be contacted for review. My discussion with appropriate Federal agencies is that the contamination isn't measured in miles and tens of miles for air and water contamination. So I still object with what's being presented to us in the public. I still -- I have your report that I received in the mail, and I do thank you for that, but I understand from other public meetings that the citizens did raise the questions, and I was one of them. But here are the questions that did not appear to be answered about the community. The insides of the homes. So do the contaminants go inside the homes, and are they still in there? EPA says apparently it's beyond their scope. But that's where the people live. The soil. Was the soil sampled below the houses that sit up on blocks? Remember, we're talking about air-blown contaminants. The EPA apparently -- I can't find their documents in their records to show that they actually did that. Again, the residents have consistently raised the question: If it's air-blown deposits, how come there's a checkerboarded cleanup? And it's not been consistent. I have consistently challenged the EPA about their models. Their models are flawed or inappropriate. Their assumptions have been incorrect. EPA ignores it and goes on.

EPA RESPONSE: Your suggestion is that consultation with other federal agencies pursuant to the National Environmental Policy Act of 1969 (NEPA) was required for this CERCLA removal action. Generally speaking, the selection of response actions under CERCLA are not governed by NEPA, but by the provisions of CERCLA and the National Contingency Plan, found at 40 C.F.R. Part 300. EPA believes that the comprehensive sampling that has been conducted for the Tex Tin site has identified the nature and extent of contamination. Modeling was used to determine the most likely areas impacted by air emissions from the Tex Tin smelter. Actual sampling, and not modeling, at 253 yards and collection of 525 samples, was used to determine locations that exceeded the removal action level of 20 ppm arsenic. Those yards where cleanups were conducted were sampled before backfilling to ensure that remaining soils did not exceed the removal action level. Nearly all the homes in the La Marque area where sampling was conducted have a slab on grade type foundation. There may be some that are a few inches above grade but not to the extent that the areas under the home would be a pathway for contamination. EPA generally does not cleanup inside homes; EPA’s focus is releases of hazardous substances to the environment, which as a rule does not include hazardous substances confined inside buildings. By cleaning up the source of contamination found in the residential yards and the original source of

contamination, the smelter, there should not be further air emissions of smelter contaminants.

COMMENT: If you are going to close this and you think you have the work done, what I did not see in your report to us was: How much money did you spend? How much money did the city get, the county get and the community get? So when you do a job and you're going to close up, we'd like to know where the money went. I also noticed when I read your report that there were inconsistencies in the labeling in your report. So, again, does EPA believe that it has the authority to waive third-party liability? And that has not been answered for more than a year, and that's not rhetorical. But I understand. EPA represents other Federal agencies, and they have a responsibility to check and report, and they're using EPA as their liaison. And, finally, I think what really disturbs me as a citizen is the precedence of your city. You're saying Tex Tin was a site. Then you divide it into four parts. Where the people live is one part, and you want to separate and close that off while you go clean up the others, except all four parts are linked, the contamination. Arsenic was the only thing you focused on, but it's not true. More than arsenic is involved. And that reporting is inconsistent. So EPA has simply discounted the citizens again, and I object to that. And that will be the end of my public comment, but I will let you know that I did receive from the Federal government from the Committee on Science, Subcommittee on Energy and Environment and a hearing at the House of Representatives that's dated 7-18 of this year, and they're challenging the models, and they're saying even the models that were used for the Federal government don't really apply to residential communities and the citizens in general. So your numbers are overstated or – either overstated or understated, and we're at risk still, and I object to that.

EPA RESPONSE: Money spent on the cleanup is provided in the reports included in the Administrative Record for the site. The city, county, or the community did not receive money as part of the removal action conducted by EPA. Funding is authorized for removal work by EPA on an as-needed basis. The Tex Tin site was broken up into four operable units because the different areas of the site were contaminated in different ways and cleanup for those specific areas can be conducted in a more timely manner. The reason we focus our discussion on arsenic is that arsenic contributes more than 90% of the cancer risk based on the risk assessment conducted for the site. There are other metals present, including lead, but arsenic was the principal contaminant. As stated earlier, modeling was just used as a starting point for sampling. Actual site specific sampling and analyses were used to determine which yards required cleanup.

COMMENT: Why do we have contamination up in our attic and not in the ground? Because our house is one of them that has a lot of contamination and arsenic and all that stuff in our attic, but y'all said we didn't have no contamination in our yard. If it had any contamination at all, it should have been cleaned up. Isn't that true?

EPA RESPONSE: EPA is unaware of sampling conducted to determine if contamination was present in home attics. Attics are not considered a direct point of contact for exposure. EPA did not state that your yard did not have contaminants present. Cleanups were based on a removal action level of 20 ppm arsenic. Some homes may have arsenic levels higher than background, but

that does not indicate that a health hazard exists. The presence of contaminants alone does not present a health hazard. There are contaminants present in the environment everywhere in the United States.

COMMENT: But you're talking about naturally-occurring material. We're talking about contaminants. The point was what the smelter put out and what the Federal government has in its own publications, and it is far more complex than simply arsenic. You're talking about actual levels, which is a separate issue because, again, the community would not be in the definition. As a geologist, I went up and looked for the deposits geologically. Those deposits and the mineralogy actually can contain uraninite and other radioactive material. They would actually also include radon. Radon has a half-life of over 1,000 years, and it doesn't take a lot to be significant. So when you start saying "action level" and "significant," again, the chemistry, et cetera is complex enough that the community needs guidance and assistance. We have not -- we would have to become chemists for metals, non- metals, et cetera.

EPA RESPONSE: We are not talking about naturally occurring materials. We are talking about man made contaminants from industrial facilities, automobile emissions, factories, and other activities that generate emissions and waste materials. We understand that the chemistry is more complex than just talking about arsenic. Sampling and analyses were conducted for other metals related to the smelter facility. More details are provided in the documents presented in the Administrative Record. We try to simplify things by presenting the most relevant information and discussing the principal contaminants for the site. In this case since arsenic contributes over 90% of the cancer risk, we keep mentioning arsenic. So by addressing the contaminant that contributes the highest risk, the other contaminants found with arsenic will also be addressed.

COMMENT: I live in the Lee addition. I want to ask him a question. Sir, did you not tell us the cleanup in the Lee addition was done on a checkerboard pattern? Sir, may I say this also? You denied this in Texas City at a meeting. When Chuck Doyle was over there in Texas City at that meeting, you denied saying that, but you stood right here and told us it was done on a checkerboard pattern. Would you answer that, sir? Can you go back on that and check? It's in the record. Do you have the record, sir?

EPA RESPONSE: At the Texas City meeting we denied saying that the cleanup or the sampling had been done in a checkerboard pattern because we did not make that statement. Someone during the La Marque meeting in March 1999 made that statement and somehow it was attributed to me. The Texas City meeting was a public meeting and the transcript is available. Unfortunately the La Marque meeting in March 1999 was just an open house meeting and there is no record available. Let us state once and for all, we did not make that statement, but if we did, we apologize. For the record, the sampling and cleanup in the La Marque residential area was not conducted in a checkerboard pattern. The cleanup may appear to be in checkerboard pattern, but it was not. The cleanup was based on the results of samples collected from each individual yard.

COMMENT: We asked that these properties be tested for cadmium, beryllium, radionuclides.

That was never done. The only issue with Tex Tin and you people has been arsenic and lead, which isn't even the carcinogens that are killing these people. You said you tested 253 homes. Not according to the documents that we have. We also questioned you on -- when you came in and you removed this soil, you didn't remove the trees or the shrubbery. I mean, you did, but you put the same trees and the same shrubbery right back into the ground. You did also say that EPA would consider going back to these homes and testing the inside, put dust in the attic and see what you came up with. That's never been done. So you're here tonight to tell these people, "Well, we washed our hands of it. No more arsenic, no more lead." And that's it. And that's not right.

EPA RESPONSE: As mentioned earlier, the residential properties were also tested for other smelter contaminants, including cadmium and beryllium. Arsenic and lead were the principal contaminants found at the highest concentrations and contributing the highest risk. As far as the homes tested, the information is presented here in the fact sheet that shows that 253 residential properties were sampled. We do not know which document you have, but the information is presented here and in the document available for public review in the Administrative Record. Also mentioned earlier, trees and shrubs do not present a health hazard. We did not say that we would come back and sample inside the homes or the attic. The attics are not a direct exposure point.

COMMENT: But you have people that live in these homes that say you did not sample the yards. You didn't. We know you didn't. These people will sign affidavits that you did not test.

EPA RESPONSE: EPA sampled 253 within the defined air deposition area based on air modeling. The actual sampling results were used to confirmed the air deposition area. We did not sample every home in the city of La Marque. There are residential locations outside the air deposition area that were not sampled. Based on the sampling results from the 253 properties tested, EPA believes that it has identified all the residential yards which exceed the removal action level of 20 ppm arsenic.

COMMENT: You tested back then and -- how come y'all didn't dig them up then and clean it up if it was contaminated? Why did you wait so many years to do it?

EPA RESPONSE: The sampling results did not indicate contaminant levels that posed an immediate threat. We tried to get the cleanup started sooner but were not able to. The good news is that the cleanup has been completed and arsenic above the removal action level has been permanently removed from the residential properties.

COMMENT: I just have a question. I think it was in 1994 that I got something from the EPA asking for permission to access my property. I did not give that permission. And so I'm wondering if, when those went out and permission was not given for you to access the property, that was just ignored.

EPA RESPONSE: If the resident refused to provide access to their property, then sampling was not conducted at that location. Residents have different reasons for refusing access to their properties. EPA does not force residents to provide access. It is done on a voluntary basis.

COMMENT: Well, I'm wondering how y'all got 253 yards. I don't -- we'd have to go over there and count, but I'm not real sure that there are 253. Each one of them squares represents a house? There ain't no 250 there.

EPA RESPONSE: Your comment reinforces EPA's statement that all residential properties in the Lee Addition were sampled. EPA's sampling extended to other areas beyond the Lee Addition and included some vacant residential lots. This again was based on air modeling and not on the boundaries of the Lee Addition.

COMMENT: You says that this place have been cleaned up properly, the yards that y'all dug in. Now, y'all did the house right behind me. Y'all did the front yard. You did the -- you come right down side his fence. You got to my area. You said it was safe. Now, look when it rains, it rains on all. Now, y'all didn't want to spend no money. This is why you didn't -- you removed that man's fence and cleaned his back yard, and you didn't want to spend the money on my yard because y'all was trying to get by. Y'all wanted the people to think that y'all were doing something.

EPA RESPONSE: If we didn't want to spend any money, we would not have spent money in sampling the residential yards and we would not have conducted the cleanup. The cleanup that we conduct under Superfund are based on sampling results and not on what someone believes is contaminated. We can only cleanup those areas that exceed health based levels and pose a threat to human health and the environment. We know that contamination does not stop at a fence line and it does not start at a fence line either. When we determine that a residential yard is going to be cleaned up, we do not just clean a spot on the yard, we clean the whole front yard or the whole back yard up to the property line even if the contaminant levels are not exceeded all the way to the property line. This is done to ensure that all of the contamination within the yard was removed and for backfill construction reasons. Arsenic contaminated dust did not just fall on some residential yards and skipped others. Many residential yards received arsenic contaminated dust, but we cleaned up only those that exceeded the action level cleanup level. We are not saying that the residential yard next to one that required cleanup did not received arsenic contamination; we are saying that the arsenic levels at that yard do not exceed the removal action cleanup level and therefore did not required a removal action.

COMMENT: And another thing. Now, if this area was cleaned up, why did the monarchs (sic) state to the Galveston paper that they was going to file suit against Tex Tin? Because it wasn't cleaned up. They said the property was still contaminated that y'all did. Now, tell me why. I'm just asking you a question. And the next thing I want to know is: How much money was laid aside for this project? I mean, what I'm trying to do -- I'm trying to find out how much was put aside for this project to do it, not how much was spent.

EPA RESPONSE: As far as why Tex Tin is being sued, that's a private matter. EPA is not involved in private suits. Before a removal action is conducted, a cost estimate is made and funding is set aside to cover those costs. Funds are withdrawn and paid to the contractor as work is conducted. The removal cost estimate was close to a million dollars.

COMMENT: Now, where did that million dollars go? Y'all didn't spend it over there in that addition. Some of it went west, huh? Or it went east. Some of that million dollars went west or east. Which way did it go? Where did it go? Where did it disappear to? If it wasn't spent on that addition, it had to go somewhere. What I want to know: Where did the balance of it go? What was it used for?

EPA RESPONSE: We did not spend the estimated funding. As stated before, the money is paid to the contractors as work is completed. Sometimes the cleanups require additional funding and sometimes funds remain after a cleanup is completed. Funds not used, go back to the Superfund program to be used to cleanup other sites.

COMMENT: Now, y'all didn't clean up the place like it was supposed to be cleaned. When it rains, it rains on all. Now, I saw right behind me -- I think it's on -- on one street behind me, y'all skipped the whole -- y'all went to the middle of the block and did one house. Now, you're going to tell me -- when it rains, it rains on all. It don't do that. It's going to skip everybody else's property and then going to stop in the middle of the block? Now, this is the way -- y'all come right up to my fence line and tell me, "Why, your property is safe." I don't even remember y'all taking a test in my yard. My address is 213 Nanlee.

EPA RESPONSE: As stated before, the removal action was conducted at those residential properties that exceeded the removal action level of 20 ppm arsenic. If your property did not exceed the removal action level, then a cleanup was not done. Your residential address may be located outside the sampling area.

COMMENT: What I'm saying: Now, it wasn't dead (sic) property because y'all -- what y'all's intention was, to let us think that y'all were doing something by what y'all did, but, now, this is the cause of this commotion, the way y'all did. Now, if you had did it right -- and another thing I understood when y'all was doing this, that it was supposed to be 12 inches, but it wasn't 12 inches of topsoil. If you were going to test it, y'all said that you were going to take out 12 inches of that soil, and y'all didn't do that. Now -- and y'all surely didn't re-sample after y'all started digging because I had my eyes on y'all. I was looking.

EPA RESPONSE: The removal action consisted of removing approximately six inches of soil and then testing before removing additional soil. If the testing results indicated that remaining soils did not exceed 20 ppm arsenic after the first six inches were removed, then no additional soil was removed. If the results indicated that the soils were still above 20 ppm arsenic, then an additional six inches of soil were removed. Confirmation sampling results or remaining soil levels

after the removal action was completed, are presented in the Removal Funded Report and in the Record of Decision for the site. The excavated areas were then backfilled with clean soil and vegetation was established. This and other information related to the removal action is available for public review at the repositories previously mentioned.

COMMENT: There was kids around there, and your men was dressed in equipment called for by OSHA. They should have gave the people in the neighborhood them things to wear too. Barefooted, no shirt on, short pants. Now, if this wasn't so, they were supposed to come to work just like I am. They had respirators and canisters, which you can change the canisters. They didn't need this if it wasn't contaminated. Y'all said that it was -- if it was safe, why should they come out there in something like this? One time you told me that OSHA requires this. OSHA requires you to wear the clothes that's necessary for the contamination you're in. What about the respirators, the canisters? I'm talking about the respirators. Now, your men -- some of them's feet wasn't touching of the ground. They was on front- end loaders. And every one of them was dressed for the contamination that they were working in. What about our kids running around out there? They didn't have on nothing, no respirator or nothing else. So it had to be at a higher level.

EPA RESPONSE: OSHA has minimum clothing requirements for persons that work in a contaminated environment on a regular basis. The minimum requirements may or may not be needed but they are still used as a precaution. Likewise for respirators, those are used at the location where excavations are being conducted. In most cases they are not needed but are used as a precaution. Air monitoring around the excavation area is a better indicator of contaminated dust levels in the work area. Air monitoring levels were not exceeded. We are not aware of children playing in an area that was being excavated. There would be a bigger threat of physical injuries than of being contaminated. The so-called moon suits referred to in the past, are more like working coverall and not the type of equipment used by astronauts or firefighters.

COMMENT: What if -- the yards that wasn't dug up and the people take and dig up some of their dirt and go have it tested and it's contaminated, what do we do then?

EPA RESPONSE: You can contact EPA so we can confirm your sampling results. If the contamination in your yard is related to the Tex Tin smelter, then EPA will evaluate the results and determine what action is needed.

COMMENT: I moved there April of '74. I bought 100 chickens, and they started dropping off daily. My trees, which was pear trees, fig trees and peach trees, they all died. I even had a mulberry pen, and I didn't care if it died. And they told me my yard wasn't contaminated. Something ain't right. My grass won't even grow. I plant grass every year, and it won't even grow. Tell me why. I cut my grass one time last year.

EPA RESPONSE: We do not know what caused your chickens to die or what may by prevent your grass from growing. The vegetation at the site, which has arsenic concentrations a thousand

times higher than the residential areas, is doing fine. So, we do not believe your grass or vegetation problems are related to the Tex Tin site. For problems with animals, you should report that to the Texas Department of Health.

COMMENT: I have a communication question. I would like to know why this pattern and these outlines in the publication don't match these so that somebody can see it readily. I'd also like to know why, if you have a sample, you don't have it showing us which properties were sampled like you said. Here's this -- our number. It turns out -- and which of the properties color coded or with some kind of pattern literally were cleaned up. So in terms of human communication with the community, I think it's a disservice to say, "We did a lot of work, hundreds of properties, and they're somewhere in that box. Y'all get to figure it out." And I think that's just poor communication. Secondly, what I could not find is "NA." I've got pages of "NA's", capital "N," capital "A," and it doesn't tell me what it means. I have an absolute value of arsenic of 17.5 at this particular property, but I don't know if that's a composite sample or a single sample. And if I take a high number and a low number and mix it together, I get a low number. So there's a lot of information that's not quite here.

EPA RESPONSE: The figures are trying to show the general area where samples were collected. We can not show actual locations and residential address. NA stands for Not Applicable or there was no information to report. The samples collected were composite samples that are representative of the area being sampled.

COMMENT: Where's the addresses on here of the houses that --

EPA RESPONSE: To protect the privacy of individual property owners, the government can not disclose the addresses of those properties where actual samples were collected. Sampling results were provided to each individual home owner.

COMMENT: I said it's just our number. I questioned: Is that the absolute value of a composite, and how come samples 3, 4, 5 are empty or say "NA"? I understand it's called slander of title. That's not Federal. That's state law. Slander of title. You just can't go out there and condemn somebody's property, but I think that's really why, when you --

EPA RESPONSE: The table was setup to include properties that also had gardens. Most properties did not have gardens and the table cells were labeled as NA, Not Applicable. We are not condemning anyone’s property and that is also why we do not release the addresses of those properties that were sampled and their results.

COMMENT: I'm a geologist, a geophysicist and not an engineer. I think when you get attorneys, there are ways of protecting people's property, but what you open it up to is: the fact is: The action levels for different chemicals change. So it's not your responsibility. It's not mine. But a lot of uncertainty in the community from a human communication standpoint like -- if the state agrees with this so much, is the state going to come in there and issue all these property

owners their voluntary compliance cleanup certificate? Is my property clean and can I sell it? Is this green clean or not? That's not your problem, but there is a lot of concern in the community. Slander of title indirectly, different titles.

EPA RESPONSE: From an engineering standpoint, it is difficult to define contaminated areas and specific locations without violating the home owner's privacy. That is why the information we presented is general and not specific. As far as issuing certificates, EPA can issue a letter to the homeowner where a cleanup was conducted and state that the property was cleaned to the removal action level and that it does not exceed health based levels.

COMMENT: I see in here that the TNRCC says that they sampled 34 homes in the Lee addition. Okay. Then when you flip the page over, it says that the EPA remediated 24 out of 25 of these yards, but then you did a total sampling of 253 properties which were not in the Lee addition. They were just all over. So you've got some inconsistencies in this report. The other thing I want to know is: When you did remediation in this Lee division, did you remove the grass? Was all that remediated? Because I really have questions. It's probably that young lady from the Texas Department of Health. I have never read such a ludicrous, stupid statement in all my life that the TDH was asked to evaluate the potential health risks to residents associated with arsenic in the soil and concluded that exposure of children to contaminated soil was not expected to result in any adverse health effects, noting that extensive grass cover in the neighborhood, but I thought you removed this grass.

EPA RESPONSE: TNRCC sampled 34 locations in the La Marque area. As a result of that sampling event, TNRCC requested that EPA determine the nature and extent of contamination in the La Marque residential properties. EPA then sampled 253 residential properties and identified 25 that exceeded the removal action level of 20 ppm arsenic. The removal action included removal and disposal of grass from the properties. The statement regarding grass cover is that the grass provides a limited barrier to exposure of arsenic contaminated soils. So grass reduces the exposure pathway. The grass was removed because it was heavily damaged during excavation of contaminated soils and it is easier to re-establish the grass cover with new grass than trying to salvage the damaged grass.

COMMENT: But it wasn't in the entire addition. I mean, these kids were playing in the contaminated soil and grass while you guys were out there supposedly cleaning it up. But yet it's not a health risk for children because there's so much grass cover? What kind of health department do we have in this state? You know, this is not in the public's best interest. I mean, it just seems like that the Federal government, along with the TNRCC and the state health department, want to do everything they can to avoid these people predominantly because they're black and you think they're not educated enough to understand what's going on. Excuse me, low income, minority. If this had been Brio, you guys would have been all over it because the people have got money. I don't live in the Lee addition, but what I see is discrimination. EPA has been compensated, but these people in this neighborhood have not, and it's your responsibility to assure these people that this has been cleaned up, and it's not been cleaned up. There's too many

inconsistencies for you to just come in here and say, "Well, we cleaned it up. We'll see you around." That can't happen.

EPA RESPONSE: Children were not playing in the yards that were being excavated. The excavation and removal of contaminated soils at each yard took from one to two days. The whole cleanup of 24 residential properties lasted just over two months. The risk posed by arsenic and other metal contaminants is based on a life time exposure. So the exposure to contaminants, if any, during the cleanup was minimal. EPA did not pay anything in the Brio site. The people at the Brio site were compensated by the responsible parties, as people are trying to get compensation here from some of the companies that they have file lawsuits. That's what happened at Brio. The responsible parties for the Brio site are also paying to cleanup the contamination. As we stated previously, the residential locations that exceed the removal action level of 20 ppm arsenic have been cleaned up.

COMMENT: And I have those reports, and what the TNRCC said was that there were levels above the MCL of radionuclides in this area. You guys never went in and tested for it. I got that letter, and I showed it to you at the last meeting. You never got back in touch with us either. I'm talking about the Lee addition when TNRCC came and did the soil and water sampling. This is not in my area.

TNRCC RESPONSE: Your letter was answered and a response was sent by E-mail. Also you got a comprehensive response from our region, and we have a record you received it, and it was explained to you that your concern about your property 11 miles away from the Tex Tin site was not warranted.

COMMENT: That memo in 1998 said that TNRCC did soil sampling and water sampling in this area. And you found radionuclides, but they never went and verified it. So you think that that's going to stay on Tex Tin? Can you guarantee these people it's not migrated? It runs right across my yard.

TNRCC RESPONSE: The sampling was done on the property of Tex Tin only, and it's close to the radionuclides landfill. That was about -- it's not away from the property of Tex Tin. It was explained to you in several E-mails. The Texas Department of Health (TDH) conducted quarterly monitoring of the Low Level Radioactive Landfill at the site from 1978 through 1996. The TDH thermoluminescent dosimeter monitoring near the site showed results that were below the limits of the Texas Regulations for Control of Radiation. Down gradient wells do not show radiation levels above MCLs or drinking water standards and clearly shows that radionuclides have not migrated offsite.

COMMENT: I think part of the issue is: Did the wind blow deposits prior to becoming a landfill? See, we still don't know the multiple sources of radionuclides in the landfill, and what we don't know is how much radioactive material was windblown. The focus exclusively or nearly exclusively on arsenic is inappropriate. There were many chemicals and metals. And that's the

open issue with members of the community. If they had smelted material and came in, just the ore itself contained a variety of metals, a variety of chemicals, and they had to go into the air. And that's when EPA comes in and says, "Let's talk about particle size," and I agree, but it says particles and small particles got into the house, into the structure of the house, and could have blown and stayed below the houses. And those are simply open issues. So I truly hope that you do not say that all human health has been protected. Maybe the acute, certainly not the chronic, and I would strongly encourage you to not say you have completed this because, in fact, the site is, in fact, literally connected legally and physically with the other operating units. So actually closing it off right now is inappropriate. Saying it's done is inappropriate. Because if an action level change or other information comes up, how do you go back to something you closed the door on?

TDH RESPONSE: When the Texas Department of Health performs human health risk assessment, what we do is: We look at situations where humans or maybe animal studies in some cases have been exposed chronically to a contaminant. We look at that level at which you see the lowest effect in the animal or the human studies, and then we apply a safety factor of sometimes 1,000 times to where we would say – y'all say cleanup level. We say safe level in the -- in this case the soil, the arsenic in the soil. So when you have a cleanup level of 20 parts per million, you're saying that at 20 parts per million over a lifetime of chronic exposure, you would not expect any adverse health effects, and you would have to be exposed to maybe 20,000 parts per million before you would expect to have lowest observable effects in humans. So there's a huge margin of safety. It doesn't mean that at 21 parts per million, you're going to have adverse effects.

COMMENT: We all have side effects from it. Everybody in the neighborhood has a problem, and I'm sure everybody in here have been sick and can't breathe. My husband have had several strokes. I have arthritis so bad, sometimes I can't hardly little walk. Bones in my leg hurt. So you cannot sit here and tell me that over there is safe. It's not just arsenic, ma'am.

TDH RESPONSE: No. What we are saying is: There -- I'm sure there are health problems in this community. There is in every community. But we would have to have a direct link between arsenic and health effects.

COMMENT: What study are you referring to that would allow you – This has been going on ten years. You base it on what studies to even allow you a direct link? What year was that? And I'm saying, again, go look at the geology of the material that was brought in. Look at the chemistry that went into the year. And it's more than arsenic. It is simply even the particle size that literally gets in the lungs.

TDH RESPONSE: We're referring to the study in Taiwan where drinking water and arsenic was consumed by people. They showed, at very high levels, that these people had alterations in their skin patterns. That's what the basis is. We believe it was '92. Right. And you would have to have exposure.

COMMENT: Then you'd have to say direct link, and I say that's the game that is becoming less acceptable in terms of compelling the community -- any community of people to come up with direct links and, in fact, a complex environment of air chemistry. So you can't just say the horns of a dilemma. But your analyses always come up with arsenic, and we live in this chemical pool.

TDH RESPONSE: Its always a dilemma. You can't isolate yourself into this little arsenic world. There's always going to be smoking and other sources of contaminants.

EPA RESPONSE: As stated previously, arsenic was not the only contaminant included in the risk assessment. Arsenic is the contaminant we keep referring to because arsenic contributes over 90% of the cancer risk.

COMMENT: That you decided. Your clients decided. It is your clients who decide. You are not in charge. You are the agent for Federal agencies. You do not own that site. Well, then the mayor of Texas City is really confused.

EPA RESPONSE: Site specific sampling determined the chemicals of concern for the site, it was not determined by other agencies or clients. Risk analyses from site specific data determined the risk for the site and which chemical contributed the highest risk. EPA does not own the site. The Tex Tin Corporation is still the landowner. Texas City has an interest on the site regarding cleanup and the potential for redevelopment of the site. Texas City does not own the site.

COMMENT: Where is your scientific analysis? Because I got a report that just went before the Subcommittee on Energy & Environment in the U.S. House of Representatives this year, and they're saying, you know, even what we do doesn't necessarily apply to the community. Not OSHA, the community. So they're looking for additional facts, and this is radionuclides. I would like to hear you just -- and I put you on the spot now because I know you're an engineer, but you said cumulative effects. Please. How come you don't reference again -- so we can go check it out, what is the reference that says, "We have studied cumulative effects"? Okay. "And when we studied cumulative effects scientifically, these were the chemicals involved." So I'm saying -- you know, what I like about the community -- I mean, in fact, I'm a scientist and apply science in business -- they've got common sense. We have so much sickness, we have statistics to show people are dying, and here we are discussing arsenic. It's ludicrous.

EPA RESPONSE: The risk information presented in the fact sheet is a short summary of the information found in the risk assessment conducted for the Tex Tin site, including the residential properties of La Marque. The risk presented is total risk or cumulative risk from the chemicals of concern for the site. As stated in the fact sheet, arsenic contributed over 90% of the cancer risk. The fact sheet also indicates that the risk assessment and other reports used in preparing the proposed plan for the site are available in the site repositories. Those locations are listed in the fact sheet.

COMMENT: How come that reference isn't here so people can go check it out? How come

we've got to extract all these really basic things? You're saying, "We made a study. We based our risk assessment on health, and here are some key references." Where are they? So then you can send me, what, 5,000 of them so I have to dig through it? No, no, no, no. Anyway, from a human communications standpoint -- We can't understand. We want -- if you sampled it, you tell us which ones really had the higher level of contamination, not the address. Show us the pattern. Show me those values. Here's a deal for you. How about this? I'm a geologist. Don't show me those boxes. Don't tell me -- and just put the dots on literally where you sampled, and give me the absolute value of the samples and the depth of the sample and the element. I'll contour it. It's called longitude and latitude. I think you're avoiding some really critical issues, and I think you're in trouble. Your clients are. If it's public record, it belongs to the public. And that's what he said. How much money was allocated? How much money was spent, and who owns the data? Who owns the information? And it turns out -- and how can anybody possibly challenge you or even question you if they can't get those values?

EPA RESPONSE: The test results (data) are presented here in the fact sheets. All the data and test results are available to public at the site repositories. As we stated earlier, we can not release the address where the samples were collected from, we can only release the test results which we have done. If we provided longitude and latitude coordinates, we would in effect be providing the addresses where the data came from. If the individual resident wants to give you that information, they're welcomed to do so. The money spent for the site investigations and cleanup is available from EPA financial record.

COMMENT: I still think you're attempting to defend the indefensible. By no stretch of the imagination did it really stop there. That's a school yard. And I'm just saying: I speculate a deal was cut to not include evaluating what happened to that community. So there's something going on here that's not appropriate. Which background level – naturally-occurring background level prior to 1945 -- or how about this? The background level out there. If that's safe out there, how come you didn't clean this like that? And you -- your clients will have the responsibility to provide the documents to show that you did or did not. That is what's going to happen. Not you, your clients.

EPA RESPONSE: When we look at the health effects from what can happen, we first look at: What could have came from this smelter? And then you're right. It's a range of metals. And we went and looked at many metals. Then we looked at the chronic health effects that could occur. So we looked at people living in the community a long time and said, "Okay. What type of health effects can occur from living there a long time?" And that was where we came up with arsenic. That was the chemical that appeared to have the most effects when people lived in the community a long time.

COMMENT: You're saying that you speculated on what the community would be exposed to. Did you ever go to these residents and find out what the health issues were? You're speculating on a standard that EPA has for a normal human being 25 years of age. Did you ever go out when you were doing these yards and ask these people, "What are your health problems right now?"

Y'all never did that. So how can you stand there and say that arsenic was the only thing that you found that might harm them? Because that's not true. The radioactive materials -- I mean, for God's sake, when the TNRCC and the Texas Department of Health -- and I do have it in writing, by the way -- says that 33.0 PCI of gross alpha in drinking water is safe to drink, I don't want to live in this state anymore. I mean, that was probably the stupidest thing I've ever seen, and it was put in writing. It's okay to drink carcinogens. That's what they told us. But you guys never went out and independently concluded with all these residents what they were suffering from. You're speculating, and you're using a study from 15 years ago. Excuse me. That's almost criminal.

COMMENT: Let me say why I think it's discriminatory. I think it's discriminatory because low income, blue collar communities are accepted as more expendable. So when you go look at your studies -- and I've seen EPA on some other health studies published -- they go to lead, zinc mining districts. They go to the mining community, to the coal mining community, and they look at it there. And I've seen -- again, why don't you go to the mayor's community, the governor's community? And if it's okay for them, then it's okay for us. And that's why I think it's economically discriminatory. And I would say -- and I've got your publication to back it up because they sent it to me for the Superfund site in Harris County, and I disagreed with them there, and they said what the state was doing and EPA was doing. And what the environmental equity program was about was racist and discriminatory, and it was racist, discriminatory practices that were being condoned and supported, and I object to that because if I live outside that boundary, I ain't stupid enough to believe it didn't affect me, and I know that what you're doing in here is, in fact, what you're doing out there where I live too. It's making them sick. It ain't making me any bit healthier. So I object to that. You haven't changed your mind, and I haven't changed my mind either.

COMMENT: I was just wondering if any of you would come and live in that neighborhood. I've lived there 11 years. There are great people in that neighborhood, love my neighbors, da, da, da, da, da. But what I want to know is if you would come and live there or if you would come over there and walk barefooted. Do you live in Dallas? I'll pay to fly you down here. I'll come pick you up at the airport and take you over there for you to spend the weekend in that neighborhood. Would you do it? I'm just asking you: "Yes" or "no." Would you come and spend the weekend in that neighborhood and drink our water and shower. I mean, you'd go outside and play in the back yard with my kids. And play in the water when it rains? Would you buy a home in our neighborhood? You know, all through my neighborhood in 11 years our property value has never increased. Here's what I see. I see TDH over here and the EPA, not all of you, but just being arrogant. She said, "What happens?" And then a lawsuit, and you're, like, well, okay. Lawsuit. You know, that is just so asinine to me. I can hardly believe the way that the -- well, I can believe it. I can believe it. You know, this is crazy. And I can't believe -- you know, ever since I walked in the door, we have gone -- here we go around the mulberry bush, the mulberry bush, around and around and around and around and around and around and around and around some more. Simple "yes" or "no" answer. I'll pay all of your expenses to come and stay in that neighborhood.

EPA RESPONSE: We don't think that it would prove any thing or serve a purpose for us to come and live in La Marque for a few days or 30 days. We have spent time at the smelter and will spend more time in the future. The conditions and contamination present at the smelter site are thousands of times worse than in the community. When we visit the site, we drink the local city water and have showered in the local hotels where we stay. The water is provided by the city and there is no reason to think that it is contaminated. Thousands of people live in La Marque and Texas City within the immediate area of the Tex Tin smelter and we have not heard of wide spread health problems. We would be glad to respond to questions with a simple yes or no answer, but the people here at this meeting want more than a yes or no answer to their questions, they want details. It seems like we are going around in circles, but people keep asking the same questions or similar questions and making similar comments and we are just responding to them. We did not come to this meeting to be arrogant or disrespectful to the community. You may not like the answers we are providing, but we are basing our statements on the investigations conducted for the site and the information that is available in the repositories. The facts are there, we have no reason to provide wrong information and to minimize the problem in the community. Providing the facts and information that people do not agree with does not mean we are being arrogant.

COMMENT: And these people don't have a choice either. Another thing is: What are you doing right now with the tearing down of Tex Tin to protect this neighborhood? I did write a letter to OSHA. They've had some pretty bad violations out there. They had people out there with no respirators, no safety goggles, no protection. These people are going home to their families and taking home those contaminants to their families. Now, I want to know what you're doing to protect this community. The wind blows every day. They're out there mowing, and all of this stuff is blowing over into this neighborhood. Would EPA be willing to come back down here and check this community again? Not for arsenic but for the other three things. And then the toxicologist can come down, and he can sit in these people's homes and ask them independently, "What are your health problems?" Because right now there is no protection for this community while you're tearing down Tex Tin. I can tell you that right now. There is none in place. And I think that is just criminal. You keep putting more on this community. This community doesn't have a choice about where they live. You do. And you choose not to come down and live in this community. I wouldn't either. But I visit this community quite often, and I see what these people are going through, and I see the people that are sick. And it makes me angry that our state government, including the Texas Department of Health, which I think needs to be abolished, and the TNRCC, which I think needs to be abolished – quite frankly, I think Governor Bush -- if he wasn't running this state, we'd probably have just a little bit better communities like this because the Federal government is not doing anything. You guys keep coming down here to these meetings and talking to people, and it's the same old thing. You deny, deny, deny.

EPA RESPONSE: Many people that reside in La Marque and Texas City do have a choice of where they live and they choose to live here. Some people may not be able to afford to move but many do and they still choose to live in this community. We are not aware of any OSHA

violations at the site. Persons working at the site go through decontamination procedures before they leave the site. We have engineering measures on-site to prevent contaminants for leaving the site and we are conducting air monitoring to ensure that air emission levels are not exceeded. We are not denying that people in the community have health problems, but they are best addressed by physicians, not EPA. EPA is not a health agency and because we can not address health concerns, you believe that we are denying that health problems exist in the community.

COMMENT: We've lived in our house for 39 years out there in the Lee addition, and when we used to have floods, all this green stuff would come over our yards from the plants, and there's still that green stuff in the ditches out there by the plants. What is that stuff? I mean, all kinds of oils would flow across the yards. It looked like antifreeze or something, that color. It would come across our yard from a crossover from the plants. What is that stuff? We haven't had floods in a long, long time, but they used to have a lot of floods out there before they done the flood gates and stuff, and all the stuff would wash into the neighborhood. But they're still in them ditches by Texas Tin, by Carbide, down around the ditches, and there's water in there, and there's green stuff. What is that? I want to know what it is. He wants to point the finger at somebody else.

EPA RESPONSE: We do not know what the “green stuff” is. We're not pointing the finger at anyone else. We're not saying that anyone else is responsible for the contamination that came from the Tex Tin site. But every problem in the community should not be blamed on the Tex Tin site either.

COMMENT: Excuse me, but you did say Carbide a while ago. I heard you. Can't tell that it's from there. It might be Carbide. It was part of a longer sentence, but, yeah, you did say it. And Carbide said it was Tex Tin. So here we are. We sits in the middle while you-all are pointing fingers at each other. This place, they can't speak for themselves because they're not there anymore. They gone. Carbide say, "We cleaning up because Tex Tin contaminated the neighborhood." It's still contaminated.

EPA RESPONSE: We did not say Carbide. As we stated before, EPA is not pointing the finger at any other company. The contamination from the smelter has been identified and the removal action has addressed the Tex Tin contaminants.

COMMENT: What's so criminal is that EPA has been paid by the responsible parties, and you said last year that once the responsible parties -- and you guys settled in court -- once you got that money, that you would make every effort to come back to this community and make sure it was cleaned up. Go back and check your records from March of 1999 because you stood right in this very room and said that. But you have a settlement agreement with them. You can tell them, "We need to earmark some of this money for this community," but you're not doing it. So you need to get the money. It's already in the settlement agreement. EPA needs to not say, "We're going to wash our hands, and you guys are cleaned up." You need to get that money and come down here and get this place cleaned up. The money is there, but you're not doing anything.

EPA RESPONSE: The responsible parties did not pay EPA. The settlement agreement is for the responsible parties to pay for and conduct the cleanup of the smelter site and pay for the Swan Lake Salt Marsh area remedial action. The cleanup at the residential area was paid by EPA and that cleanup has been completed. Testing results do not justify cleaning up additional residential properties.

COMMENT: So if this community got together and they hired an independent that came out there and they tested that soil and it comes back higher than hell, higher than 1994, are you going to stand up here and tell me that you guys aren't going to come back and do it? I'll tell you what. These people will put the money together, and they'll hire an independent, and they'll prove you wrong. You did not clean it up. You know you didn't. These people know you didn't

EPA RESPONSE: The community can do their own testing if they want. We have conducted our own testing, identified those yards that exceeded the removal action level, and have cleaned those up. The information from the investigations and cleanup activities is available for the public to look at.

COMMENT: I live right close to here. I don't live in the affected site, but I have to agree with this young lady that I'm sure that I'm affected by wind and rain. My question is -- the proposal is to close this area, and this is going to be -- it's going to be closed as this is a done deal. It's completed. What does the community have to do to prevent this area from becoming closed, and can the community do anything to prevent this from being closed? If there is no legal action, is there anything that the community can do other than legal action, legal litigation to stop this area from being called closed, done? Now, the proposal is that this area is completed, that the cleanup has been done by the numbers. Now, there's all kinds of conversation as to whether it is or isn't, and I won't get into that. But what can this community do? The people in this community, what can they do to prevent this from being closed? Can they do anything? If I write a letter, is that going to prevent it from being closed? I know it will be considered, but will it -- what can I do to keep it from being closed? Anything?

EPA RESPONSE: The site is will not be closed or deleted from the Superfund list with this action. We are just recommending no further action based on the investigations conducted and the removal action that was completed in June 1999. If the community provides EPA with new information that indicates that additional cleanups are warranted, then the no further action recommendation will be withdrawn.

COMMENT: How can he do that without any technical work? It's a Catch-22. Y'all provide us with the money to have our own yards tested and who we want to test it. We want independent testers who aren't from the government, either state. Because the government's going to say they've done their job. I know how that government works. I know how these senators are and all this stuff. They're crooked. They're no good. See, that's where you think you have the upper hand. You think this community can't afford to go out and do something like that, and I've got news for you. He here can get people in his area, and this whole city can pull together, and if we

have to find somebody to try and do it pro bono, which won't charge the community, and if we do show you wrong, I want your guarantee you're not going to close this unit. Put it in writing. It's on the record.

EPA RESPONSE: We can not provide you with the money for testing because we have already done the testing. If the community wants to site to remain in the Superfund list, we will leave it on the list at list until the smelter cleanup is completed. Before this is done, we would want to hear from the result of the community to see if they feel the same way.

COMMENT: He doesn't have the authority to make that agreement. That's why he did it. You can make a recommendation. Do you have signature authority?

EPA RESPONSE: We can make that decision based on the information that we have and if that is what the community wants. You are correct that we do not have signature authority, but the persons that do base their decision on our recommendations.

COMMENT: But if an independent comes in and it shows these levels are exceedingly high, are you going to try and challenge it and then decide to come down here and test these people's yards, or are you going to say, "Okay. We believe these reports. We're not going to close this unit"? Okay. Why do you want to put the burden on the community to have to do that? Why can't you -- you just said you had the authority. Why can't you go and say, "You know what? Look, guys. We don't need to close this unit. We need to get back down there, and we need to do our sampling, and we need to send this toxicologist down here to talk"? Why can't that be done?

EPA RESPONSE: We would have to check what the contractor did, how it was done, and what quality controls were used before agreeing with the data. We do not want to put the burden of testing on the community. EPA has already conducted the testing. It is the community that is putting the burden of proof on EPA by not believing the test results from the sampling that has already been conducted.

COMMENT: That was six years ago. You're over there tearing the place down now, and all that crap is coming over in this community. You don't know. These levels might be tripled. Why is it so hard? It doesn't cost you that much money. Why can't that be done? It's not your money. Y'all aren't going to tell the community everything. Y'all keep a lot of secrets over there. I guess that the end result is: You come down here. You've got this public comment period for these people. But you're basically saying: Well, we did our testing back in 1994. It doesn't matter what any of you people say. We're closing the unit. That's what it sounds like you're here for, and that's what this community is objecting to. And you can't force the burden on these people to pay for their own testing to end up in litigation in court that's going to take years, and probably half of these people will be dead. This is going to end up to be another Department of Energy mess like the people that were exposed to beryllium 40 years ago, and they're just now being paid, and they're almost half dead. You guys are getting your expenses paid to come down here and talk to these people, but you've already got your mind made up. You need to leave it open, and

you need to do some further testing because you've got health problems in this area, and you've got homes that are contaminated. You can't go by figures from six years ago.

EPA RESPONSE: Although the testing was conducted six years, conditions should not have changed significantly since the smelter closed over nine years ago and there are no additional smelter emissions. During the demolition work that's ongoing right now, we've been doing air monitoring, and none of those levels have been exceeded. So we do not believe that additional contamination is going to the residential areas. We have the information and you are welcome to look at.

COMMENT: You are talking about action levels that EPA sets, says. And what I do like about the Federal government is the funding of the public meetings legitimately relaying the public comment, and what the public is saying is: We disagree with you. You say, "It's our action level," and we're saying, "Your action level is too high." When these levels agree with these levels, that's better, but if this level is still high, it doesn't agree with these background levels. We disagree with you.

COMMENT: I was wondering if you did any physical -- people that live over there on the one with the high level of arsenic, have you done any physical toxicology reports, any logical studies? I know my daughter spent two weeks in Palestine. She walks in the house, and five minutes later her nose is bleeding. I don't know if that's affected with certain chemicals or not. I'd have to look it up. But for no reason at all her nose just started bleeding. She spent two weeks in Palestine, and nothing happened. She walks in the house, and five minutes later her nose is bleeding. I want to know if you did any toxicology studies of the people themselves. Forget the yards. Have you done any on the people?

EPA RESPONSE: EPA does not conduct physical testing. Medical problems should be referred to your doctor. If unusually high medical problems or symptoms are occurring in a community, we believe that the Texas Department of Health checks into or the Agency for Toxic Substances and Disease Registry.

COMMENT: That was from six years ago. I guarantee you that when you come out and you do the sampling now, you're going to see that these levels are a lot higher than from six years ago. The community is confident of what the test results are going to be, and I think the community will tell you. If you come back down and you do every home and you get this toxicologist down here and you start addressing the health issues, I think the people would be satisfied. But just to come down here and say, "Okay. We're going to listen to your comments. We're going to take this back. Six years ago we tested; no problem," you've already got your mind made up, and that is not right. You need to have a little compassion for these people down here. I know you don't live down here, and I know this is not your community. It's not my community either, but I'm sitting over here talking on behalf of some of these people because it angers me that the Federal government just doesn't want to take the responsibility to do their job. Quit saying arsenic, and quit saying your test results from six years ago. It's been too long. You need to come back down

here and repeat everything. You can't close this unit out.

EPA RESPONSE: There is no reason for the arsenic levels in the community to be higher than they were six years ago when the sampling was conducted. The smelter stopped operating nine years ago in 1991. It took 50 years with the smelter in operations to get to the levels found in 1994, so the results should not have changed in six years with the smelter closed. As stated before, we talk about arsenic because it is the principal contaminant and contributed over 90% of the cancer risk. If you want to talk about other metals present at the site, we can do that.

COMMENT: I don't want to be -- if it's 20 -- I don't want to be exposed to it if it's 19 or 17. It's easy for him to say it's safe because he's away from here.

EPA RESPONSE: EPA can only cleanup contaminated areas to levels that are based on risk assessments results. The risk assessments are very conservative and are based on a life time of exposure to contaminants. The removal action cleanup level of 20 ppm arsenic used in the La Marque area is even lower than the acceptable risk range. The removal action level may not be acceptable to some people, but it is considered a safe level.

COMMENT: The question that I wanted to ask is: I can't understand why it would be proposed to close this site for any further cleanup when several more portions of the Tex Tin site remain to be cleaned up. All of the buildings over there -- correct me if I'm wrong. The sheeting on those buildings, was it or was not transite? Transite is 90 percent asbestos. When it's broken up, it's an airborne material. That's not -- that's just off the top of my head. I don't have any earthly idea what all may be involved in that plant area. But the point I'm making is: As the cleanup progresses, although the EPA is going to be watching this and OSHA has controls over the manner in which it's cleaned up, there is still a prevailing southeast wind from 15 to 25 miles an hour that's going to carry any airborne particulates all the way across, probably past my house. To say that we've completed the cleanup in this area when all of this other work remains to be done doesn't make sense. And that's why I asked the question previously. What can the community do -- if the community were to create a petition, is there anything short of having physical data, chemical testing or whatever in each area -- is there anything short of that that the community can do to prevent the EPA from saying that this area is done, closed? We don't want it closed. We're talking about Operative Unit No. 3. Wasn't that the question for this evening? And the proposal for this evening was that we have until August 17th -- if I recall your statement at the beginning of the meeting, we have until August 17th to submit in writing any problems that we may have with them closing this area. Now, perhaps I'm assuming that closing the area means that there's no further cleanup to be done to that area or that there can be no more questions about what was done to the area.

EPA RESPONSE: If the community wants OU No. 3 to remain in the list of Superfund sites until the smelter cleanup is completed, EPA will seriously consider that. There is a difference in closing the site and no further action. For example, if a decision is made that no further action is needed, then the next step would be to delete it from the NPL or the Superfund list. The "No

further action" we are recommending is that we believe the contaminated areas have been addressed and no further cleanup is need. The action we are discussing today will not remove the site from the Superfund list.

COMMENT: Yes, sir. I'd like to go, if I could, and tell both of you gentlemen that I appreciate the fact that you're standing up there taking all the shots from the community trying to answer questions. I do appreciate that. I would also like to think that both of you gentleman have done all that you can do to see that everything has been done appropriately in these areas. I would like to believe that. But I cannot see -- that's why I'm asking the specific question. Are we saying that when August 17th rolls around, at that point it's closed, which means that there's no further conversation, no further -- no one can ask any more questions, that's it, we're done with Operative Unit No. 3?

EPA RESPONSE: From the standpoint of remediation or cleanup, that would be the case, but from the standpoint of taking it off the Superfund list, it can still remain on the Superfund list or NPL even if we come up with no further action.

COMMENT: If it's taken off but it remains on the Superfund list and y'all continue for the next two years cleaning up the Tex Tin corporation area, the entire area, as the area is cleaned and there's an escalation of illness in this area, is there a possibility for the residents of this area to have any kind of recourse? Can they call for help? Or are we saying that this area is closed? That's the bottom of my question. That's why I reiterated the question.

EPA RESPONSE: If during the cleanup of the smelter, releases occur that justify coming back out to the community or new information or data become available, then EPA would consider additional sampling and if necessary, additional removal actions. The site is never really closed even when it is removed from the Superfund list. If releases occur from the smelter that contaminate the area above health based levels, the site can be added to the Superfund list without having to re-proposed the site in the Federal Registry.

COMMENT: What you're saying is that your particular cleanup -- the proposed cleanup that has been ongoing for the last months or however long it's been going on, that has been completed and you're closing that portion of your operations. Am I correct? But the area is not closed, as far as the community is concerned, for any questions or any other further problems that may arise.

EPA RESPONSE: The not further action recommended only applies to cleanup activities. The community can continue to provide comments, ask questions, or send mail concerning all Tex Tin activities for the four operable units. The right of the community to ask questions or make comments for the Tex Tin site are never closed.

COMMENT: We're talking about soil. We're talking about people's homes. We're talking about cleanup. We're talking about going and doing any work that needs to be done in the months ahead. This says you don't have to do it because it says, "Recommend that no further

remedial action is necessary to protect human health and the environment at the residential properties of Operable Unit 3." Until it gets cleaned up, it's going to be part of the Superfund. Now, you can follow your regulatory language, which is, by the way, a separate dialect as far as I'm concerned. That's very misleading and confusing to people who are not intimately involved with it. I think part of the biggest omission on the part of EPA was to literally not allow people in the community much more direct input with -- I mean, physically there with the sampling and I mean literally with the cleanup. If people need jobs -- and they can just wear one of those suits -- people are available to do that work. They were never allowed to be part of the process. And I think -- and it's so confusing and complex, people feel alien. And they're correct. I think that was an error -- it may be a policy, but inappropriate for residential communities. You have literally segregated this community from its neighbors. Even if you take that red line off, everybody knows.

EPA RESPONSE: We believe that removing the contaminated soils that exceeded 20 ppm arsenic is protective and human health and the environment. The smelter had ceased operations in 1991 and removing the contaminated soil will eliminate the source of contamination in the residential properties. We believe that the dust inside the homes can best be addressed by the homeowner. We try and get the community involved as much as possible in the activities that are conducted during the Superfund process. As far as sampling and cleanup criteria, we hire engineering firms to assist EPA in determining where and the type of sampling that is needed to identify the nature and extent of contamination. We used that information to conduct risk assessment and determine the cleanup levels that are protective of human health and the environment. As you indicated earlier, the community does not have the technical expertise to provide input on sampling and cleanup levels, but we do solicit input from the community at specific steps in the Superfund process.

COMMENT: I think the community's proposal is this, that Operating Unit No. 3 remain on the Superfund list, and it should be the last OU to be deleted from the Superfund site. During your process of the cleanup of the Tex Tin site, OU 3 should remain until all that is completed. That's how you're going to be able to protect the community; and during the process, whether it's the next two years, EPA come down and start testing and doing soil samples to make sure that the adverse health effects don't escalate. We're proposing -- to make a long story short, in summary, the community does not like your recommendation for no further action. We want OU No. 3 to be the last operative unit to be deleted from the Superfund list. It's not a matter of whether you're going to close it or keep it open. I understand what you said, but we want to be -- OU 3 needs to be the last one to be deleted. That's all the community is asking for, is to keep that proposal in mind. They don't want to be shut out. But it's almost like it's backwards. You're starting off with tearing down the Tex Tin site in OU No. 1 and 2, and then you -- the community is No. 3. Then you've got 4 and 5. That doesn't make any sense to me. You clean up the Superfund site, and then the community should be last, and that's when you should come back in and make sure that it is cleaned up and that it hasn't gone beyond that boundary. It doesn't matter whether it's taken off or it's not. We're saying it needs to be last. It needs to be last to be lifted from the Superfund list, and you do need to come back down here and do further sampling and do further testing and get

that toxicologist down here. Independent.

EPA RESPONSE: This particular action does not mean that OU No. 3 will be taken off the Superfund list. This action in the Superfund process is the Record of Decision phase where a remedial alternative is selected or a recommendation made for no further action. The decision made in the Record of Decision will not remove the site from the Superfund list regardless of the decision made. The recommendation at this time is for no further remedial action because the removal action conducted by EPA addressed those residential properties that exceed the removal action level of 20 ppm arsenic. In numbering the different areas or operable units associated with contamination for the Tex Tin smelter, we believe that the source of the contamination, which is the smelter facility, should be called Operable Unit No. 1. The Amoco property which at one time was part of the smelter operations was named Operable Unit No. 2. The residential properties followed and were named Operable Unit No. 3. Then the Swan Lake Marsh area was named Operable Unit No. 4. This does mean that operable unit 1 and 2 are more important than residential area. It is also not an indication that the cleanup at operable unit 1 and 2 would be conducted before cleaning the residential properties. We first try to clean the areas where more people could potentially be exposed to contaminants. The residential areas were cleaned up in 1999 and just now in 2000 we cleaned up a portion of the smelter facility, OU No. 1. This proposal is not to remove the residential areas from the NPL or Superfund list. As stated previously, we believe we have identified the locations that exceeded the removal action level and have cleaned those up. However, if there is a reason and information that shows the need to return to the residential areas, that will be done.

COMMENT: I've got one more -- one little piece I didn't understand. "Because the removal action did not result in hazardous substances, pollutants or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a five-year review will not be required for OU No. 3 of the Tex Tin site." So is that saying that normally there's a five-year review of these deals and that it's not needed over here? But we're going to remain on y'all's list. We can remain on your list, but a five-year review –

EPA RESPONSE: Sites where contaminants remain above health based levels require five-year reviews. Sites where the cleanup is conducted such that remaining levels do not exceed health based levels do not require five-year reviews. That is the case for this site and many other sites through Region 6 and the country. The site can remain in the Superfund list if that is what the community wants, but a five-year will not be required.

COMMENT: You see, whoever put this together didn't talk with the people who lived in communities. They were living in Washington D.C. or somewhere, but they weren't in or around blue collar communities that have to live with the problem, and that's inappropriate. So maybe it was a good start. It certainly needs to be modified. But if there's -- I know you have the experiences, but it doesn't change EPA's behavior in terms of using discriminatory practices and -- you say it's allowable, and I say it's unacceptable. It's just too high.

EPA RESPONSE: Well, there's one thing we want to comment on and go back to this gentleman's comments right here. He asked quite a while ago about: What can the community do? And we want to get something in here, and we can move on to wrap up the meeting. We have encouraged, for example, just one thing here, and that is that the community seek a technical assistance grant, a TAG. We talked about it at the past meetings. That still has not happened. That grant is still available. We encourage; we strive to work with members of the community to get that grant. One of your community members is currently seeking that grant. The application has not been completed. It's not -- things have been left out of it. So it still hasn't happened. But her group -- or people who are interested in working with her can join her group. But that grant is to hire a technical advisor to study the site. That's just one small thing you can do, but it's an important step. That is still out there. You-all can seek that TAG, and it's there.

COMMENT: What they ought to do is actually see to it that the community gets a grant that allows them to get some information to understand what has been done. All of this confusion and the changes in formats and figures, they don't have a working understanding of it. How would they know where to -- well, you certainly can see -- if you show me a blank map, where are the properties that were never tested? And start looking at the absolute values, finding out if they're composite samples. But if the community has a responsibility, somebody has to provide them with some funding. Otherwise you're asking them to go and find some people in the engineering science and health to do this pro bono. Your clients are sitting back there with some settlement for zero dollars? That TAG grant, you can't conduct any present testing under that. All it's for is -- you have to hire an expert to go over your documents from six years ago. The TAG grant doesn't cover any technical assistance as far as testing property or adverse health effects on the community now. It says the community, in fact, cannot do that. In fact, it says if the community cannot collect any additional information that could be used in -- or for the purpose of litigation. So the grant literally is to help the community review the documents to find out -- actually to find out what the EPA is saying. It's supposed to be a translation, translated into a language that people in the community can understand. That's the TAG grant.

EPA RESPONSE: We are not trying to put the burden on the community, but the community is challenging all the results, all the information that we have. The TAG grant is for the community to hire an independent technical consultant to review the documents for the site and inform the community about cleanup activities that are taking place at the site.