Five-Year Review Report

Third Five-Year Review Report
for the
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

PREPARED BY:

Region 6
United States Environmental Protection Agency
Dallas, Texas

September 2006

THIRD FIVE-YEAR REVIEW

Sikes Disposal Pits Superfund Site
EPA ID# TXD980513956
Crosby, Harris County, Texas

This memorandum documents the United States Environmental Protection Agency's (EPA's) performance, determinations, and approval of the third five-year review for the Sikes Disposal Pits Superfund Site performed under Section 121(c) of the Comprehensive Environmental Response, Compensation & Liability Act (CERCLA), 42 United States Code (USC) §9621(c), as described in the attached Third Five-Year Review Report.

Summary of Third Five-Year Review Findings

The third five-year review for the Sikes Disposal Pits Superfund Site indicates that the remedial actions set forth in the decision documents for the site continue to be implemented as planned. Operations and Maintenance (O&M) activities which include semi-annual ground water monitoring and well maintenance are performed by the Texas Commission on Environmental Quality (TCEQ). Based on the third five-year review site inspection, data review, interviews, and technical assessment, it appears the remedy is generally functioning as intended by the decision documents.

To ensure continued protectiveness, however, eight issues are identified in the third five-year review for this site. These issues do not currently affect the protectiveness of the remedy, but need to be addressed to ensure continued protectiveness. These issues are:

1. **Locks are not present on the access gates to monitor wells GW-7 and GW-27.** Monitor well GW-7 is located next to the railroad bridge over the road that is located along the eastern and northern site boundary. The second five-year review also noted the lack of a lock on the access gate at well GW-7. Monitor well GW-27 is located in the northern portion of the site, approximately 200 feet south of the road located along the eastern and northern site boundary. Access to both monitor wells is not restricted from the road. The lack of locked gates at these two wells means that access by the public or trespassers to the wells is not prevented. Unrestricted access increases the potential for the wells to be damaged or compromised. All other site wells are secured by locks on their individual security fences.

2. **Drums containing purge water are currently stored inside the security fence at monitor wells GW-28/GW-29 and at monitor well GW-35.** The drums at GW-28/GW-29 are rusted. The drum at GW-35 appears to be in good condition. The O&M Plan stipulates that all purge water will be characterized and properly disposed.

3. **There were two monitor wells (SI-116 and INT-116) located during the site inspection that are not shown on site maps. These wells are not a part of the current monitoring program.** There is no information available concerning these two wells in the documentation reviewed as part of this five-year review. At the surface, the wells appear to be in good condition. If there are no plans to use these two wells as part of the ongoing monitoring program, they should be abandoned.

4. **Since the ROD was signed, MCLs have been established for several site contaminants that are lower than the human health criteria presented in the ROD.** The ROD identified human health criteria or drinking water standards as the remedial objective for the contaminated ground water. The MCLs established for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-dichloroethane,

ethylbenzene, toluene, 1,1,2-trichloroethane, trichloroethene, and vinyl chloride are below the human health criteria defined in the ROD.

5. **The concentrations of several contaminants have recently increased in the shallow aquifer in monitor well GW-28 (benzene, trichloroethene, and vinyl chloride), located near and upgradient of the ponds at the Love Marina.** The increases are about an order of magnitude or less, and have occurred over the past few years. This monitor well is located along the downgradient (southern) boundary of the site. If increasing contaminant concentrations are verified, they could indicate migration in the ground water. If the contamination is migrating, it could eventually discharge into the ponds at the Love Marina.

6. **In one of two duplicate surface water samples collected from the west pond in the May 2006 sampling event, the chromium concentration exceeded the Texas surface water quality standard for the protection of aquatic life.** In the second duplicate surface water sample, chromium was detected, but was below the standard. The Texas surface water quality standards are specified as an ARAR for the site in the ROD. Chromium was not detected in ground water samples collected in May 2006 from upgradient monitor wells GW-15 and GW-30.

7. **Access to the site on the northern entrance is restricted by a lock maintained by the property owner**. Currently, the TCEQ does not have keys to the lock at the northern entrance. During sampling events and site visits, sampling personnel must notify the property owner a day or two prior to the sampling event to gain access to the site through the northern gate.

8. **Deed notices describing the site hazards are not in place for all properties within the boundary of the site.** Deed notices are on file at the Harris County Clerk's office for the properties owned by Mr. Richard O. Sikes, Mr. Jim Love, and Mr. M.W. McCledon. However, these three deed notices do not cover the ground water area of the site in its entirety. The properties of Mr. William N. Parker and Larry Anderson are inside the site boundary and no deed notices for these two properties were found in the Harris Clerk's office real property records.

Actions Needed

To address the issues identified during the third five-year review, the following recommendations and follow-up actions have been identified for the Sikes Disposal Pits Superfund Site:

1. **Place locks on the access gates at monitor wells GW-7 and GW-27.** The access gates should be secured to prevent unauthorized access to wells. The fences and gates are required to restrict access and prevent damage to or tampering with the monitor wells.

2. **Dispose the purge water contained in the drums at monitor wells GW-28/GW-29 and GW-35 in accordance with the O&M Plan.** The drums at GW-28/GW-29 are rusting and should be replaced. All purge water generated as part of sampling activities should be disposed during the following sampling event, and the O&M Plan should be modified to incorporate specific criteria for regular disposal of purge water generated during the ground water sampling activities. TCEQ has indicated the purge water presently onsite will be characterized and disposed during the next semi-annual sampling event.

3. **Evaluate the two wells (SI-116 and INT-116) located on the road along the eastern site perimeter approximately 100 yards north of the intersection with US Highway 90.** TCEQ has indicated they plan to sample and analyze groundwater from monitor wells SI-116 and INT-116 during the next semi-

annual sampling event, and make a determination based on the results. These wells should be either incorporated into the ground water monitoring program and the O&M Plan, as appropriate, or properly plugged and abandoned.

4. **Revise the ground water criteria to the lower value of the ROD-specified human health criteria or the current MCL.** Since the ROD was signed in September 1986, MCLs have been promulgated for several site contaminants that are lower than the human health criteria defined in the ROD. To ensure the protection of human health through the ground water pathway, the TCEQ has indicated that remedial objectives will reflect the more conservative MCLs in lieu of the human health criteria, consistent with the Applicable or Relevant and Appropriate Regulations (ARARs) presented in the ROD. The current and revised criteria are described in **Table 2** of this five-year review report. Future five-year reviews must re-evaluate the MCLs relative to the human health criteria and adjust the values as appropriate to maintain the protectiveness of the remedy.

5. **Continue to monitor the ground water in accordance with the O&M Plan and continue to monitor the surface water in the two ponds located at the Love Marina.** If contaminant concentrations continue to increase in the shallow ground water, it will be necessary to evaluate measures to address the contamination and potential contaminant migration to the ponds and offsite receptors in ground water. In addition, contaminant concentrations in the two ponds should continue to be monitored to verify that concentrations in the ponds meet the most current surface water quality standards. The Protective Concentration Levels (PCLs) established by the TCEQ will be used to evaluate the contaminants where a surface water quality standard does not exist.

6. **Continue monitoring the surface water to verify the chromium concentration in the west pond**. The TCEQ plans to increase the frequency of dedicated sampling events for the monitoring of contaminant levels in the ponds. If the exceedance of the aquatic life surface water quality standard for chromium is repeated, the source of the chromium contamination in the west pond should be evaluated. Additional action may be required to address the chromium exceedance in surface water to protect aquatic life.

7. **Make arrangements for more convenient access through the northern entrance to the site for sampling events.** The TCEQ has indicated they plan to work out an agreement with the property owner to have access and a separate lock to the northern entrance of the site.

8. **Evaluate the need for deed notices to be put into place describing site hazards for the properties of Mr. William N. Parker and Mr. Larry Anderson.** The TCEQ has indicated they plan to ensure that all affected properties have deed notices in place describing the site hazards.

Determinations

I have determined that the remedy for the Sikes Disposal Pits Superfund Site is protective of human health and the environment in the short term, and will remain so provided the action items identified in the Five Year Review Report are addressed as described above.

Samuel E. Coleman, P.E.
Director, Superfund Division
U.S. Environmental Protection Agency, Region 6

Pamela Phillips, Acting

Date

9/27/06

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CONCURRENCES

FIVE-YEAR REVIEW
Sikes Disposal Pits Superfund Site
EPA ID# TXD980513956

By: _____ Date: 9/15/06
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Remedial Project Manager

By: _____ Date: 9/22/06
Gustavo Chavarria, U.S. EPA
Chief, Arkansas/Texas Program Management Section

By: _____ Date: 9/22/06
John Hepola, U.S. EPA
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By: _____ Date: 9/21/06
Anne Foster, U.S. EPA
Attorney, Office of Regional Council

By: _____ Date: 09/26/06
Mark Peycke, U.S. EPA
Chief, Superfund Branch, Office of Regional Counsel

By: _____ Date: 9/26/06
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Deputy Director, Superfund Division

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Contents

Section **Page**

List of Tables

List of Figures

List of Attachments

Acronyms

µg/L	micrograms per liter
ARARs	Applicable or Relevant and Appropriate Requirements
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
1,2-DCA	1,2-Dichloroethane
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
HRS	Hazard Ranking System
ICs	Institutional Controls
LAN	Lockwood, Andrews, and Newman, Inc.
MCL	Maximum Contaminant Level
mg/l	milligrams per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OSHA	United States Occupational Health and Safety Administration
OSWER	EPA Office of Solid Waste and Emergency Response
PAHs	Polynuclear Aromatic Hydrocarbons
PCL	Protective Concentration Level
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
SWDA	Safe Drinking Water Act
TAC	Texas Administrative Code
TBC	To Be Considered
1,1,2-TCA	1,1,2-Trichloroethane
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TDWR	Texas Department of Water Resources
TNRCC	Texas Natural Resources Conservation Commission
TWC	Texas Water Commission
USC	United States Code
VOCs	Volatile Organic Compounds

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Executive Summary

Pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund"), 42 United States Code (USC) §9621(c), the third five-year review of the remedy at the Sikes Disposal Pits Superfund Site located in Crosby, Harris County, Texas was completed in September 2006 as a matter of EPA policy. The results of this third five-year review indicate that the remedy is currently protective of human health and the environment in the short term. Overall, the remedial actions performed appear to be functioning as designed, and the site has been maintained appropriately. No deficiencies were noted that currently impact the protectiveness of the remedy, although several issues were identified that require further action to ensure the continued protectiveness of the remedy.

The selected remedy for the site was chosen to remove the principle threats to human health based on direct exposure to hazardous materials disposed at the site, direct exposure to contaminated soils, ingestion of contaminated groundwater, and to mitigate future impacts to human health and the environment. The remedy for the site included excavation and incineration of contaminated soils and sludges, flood protection and run-on/run-off control, water treatment and discharge, and natural attenuation of the ground water contamination. As part of the selected remedy, the Record of Decision (ROD) called for Operations and Maintenance (O&M) to include general site maintenance and ground water monitoring. The ROD specifies that the O&M period is to last until contaminant concentrations in the ground water have decreased below drinking water standards or the human health criteria defined in the ROD. O&M at the site now includes semi-annual ground water monitoring and up-keep of the site monitor wells (fence repairs, well repairs, and removing dense vegetation around monitor wells). O&M at the site is the responsibility of the Texas Commission on Environmental Quality (TCEQ).

Under the statutory requirements of Section 121(c) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), P. L. 99-499, and the subordinate provisions of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) 300.430(f) (4) (ii), five-year reviews are required for sites where hazardous substances remain onsite above levels that allow for unlimited use and unrestricted exposure. Five-year reviews may also be conducted as a matter of EPA policy for sites where a pre-SARA remedial action leaves hazardous substances onsite above levels that allow for unlimited use and unrestricted exposure. Such are the factual circumstances at the Sikes site. The first five-year review for the site was completed in April 1998, and the second five-year review was completed in September 2001.

As noted above, remedial actions performed at the site appear to be functioning as designed, and the site has been maintained appropriately. To ensure continued protectiveness, eight issues are identified in the third five-year review for this site. These issues do not affect the current protectiveness of the remedy, but must be addressed to ensure continued protectiveness. These issues are:

1. **Locks are not present on the access gates to monitor wells GW-7 and GW-27.** Monitor well GW-7 is located next to the railroad bridge over the road that is located along the eastern and northern site boundary. The second five-year review also noted the lack of a lock on the access gate at well GW-7. Monitor well GW-27 is located in the northern portion of the site, approximately 200 feet south of the road located along the eastern and northern site boundary. Access to both monitor wells is not restricted from the road. The lack of locked gates at these two wells means that access by the public or trespassers to the wells is not prevented. Unrestricted access increases the potential for the wells to be damaged or compromised. All other site wells are secured by locks on their individual security fences.

2. **Drums containing purge water are currently stored inside the security fence at monitor wells GW-28/GW-29 and at monitor well GW-35.** The drums at GW-28/GW-29 are rusted. The drum at GW-35 appears to be in good condition. The O&M Plan stipulates that all purge water will be characterized and properly disposed.

3. **There were two monitor wells (SI-116 and INT-116) located during the site inspection that are not shown on the site maps. These wells are not a part of the current monitoring program.** There is no information available concerning these two wells in the documentation reviewed as part of this five-year review. At the surface, the wells appear to be in good condition. If there are no plans to use these two wells as part of the ongoing monitoring program, they should be abandoned.

4. **Since the ROD was signed, MCLs have been established for several site contaminants that are lower than the human health criteria presented in the ROD.** The ROD identified human health criteria or drinking water standards as the remedial objective for the contaminated ground water. The MCLs established for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-dichloroethane, ethylbenzene, toluene, 1,1,2-trichloroethane, trichloroethene, and vinyl chloride are below the human health criteria defined in the ROD.

5. **The concentrations of several contaminants have recently increased in the shallow aquifer in monitor well GW-28 (benzene, trichloroethene, and vinyl chloride), located near and upgradient of the ponds at the Love Marina.** The increases are about an order of magnitude or less, and have occurred over the past few years. This monitor well is located along the downgradient (southern) boundary of the site. If increasing contaminant concentrations are verified, they could indicate migration in the ground water. If the contamination is migrating, it could eventually discharge into the ponds at the Love Marina.

6. **In one of two duplicate surface water samples collected from the west pond in the May 2006 sampling event, the chromium concentration exceeded the Texas surface water quality standard for the protection of aquatic life.** In the second duplicate surface water sample, chromium was detected, but was below the standard. The Texas surface water quality standards are specified as an ARAR for the site in the ROD. Chromium was not detected in ground water samples collected in May 2006 from upgradient monitor wells GW-15 and GW-30.

7. **Access to the site on the northern entrance is restricted by a lock maintained by the property owner**. Currently, the TCEQ does not have keys to the lock at the northern entrance. During sampling events and site visits, sampling personnel must notify the property owner a day or two prior to the sampling event to gain access to the site through the northern gate.

8. **Deed notices describing the site hazards are not in place for all properties within the boundary of the site.** Deed notices are on file at the Harris County Clerk's office for the properties owned by Mr. Richard O. Sikes, Mr. Jim Love, and Mr. M.W. McCledon. However, these three deed notices do not cover the ground water area of the site in its entirety. The properties of Mr. William N. Parker and Mr. Larry Anderson are inside the site boundary and no deed notices for these two properties were found in the Harris Clerk's office real property records.

The recommended actions to address these issues are:

1. **Place locks on the access gates at monitor wells GW-7 and GW-27**. The access gates should be secured to prevent unauthorized access to wells. The fences and gates are required to restrict access and prevent damage to or tampering with the monitor wells.

2. **Dispose the purge water contained in the drums at monitor wells GW-28/GW-29 and GW-35 in accordance with the O&M Plan.** The drums at GW-28/GW-29 are rusting and should be replaced. All purge water generated as part of sampling activities should be disposed during the following sampling event, and the O&M Plan should be modified to incorporate specific criteria for regular disposal of purge water generated during the ground water sampling activities. TCEQ has indicated the purge water presently onsite will be characterized and disposed during the next semi-annual sampling event.

3. **Evaluate the two wells (SI-116 and INT-116) located on the road along the eastern site perimeter approximately 100 yards north of the intersection with US Highway 90.** TCEQ has indicated they plan to sample and analyze groundwater from monitor wells SI-116 and INT-116 during the next semi-annual sampling event, and make a determination based on the results. These wells should be either incorporated into the ground water monitoring program and the O&M Plan, as appropriate, or properly plugged and abandoned.

4. **Revise the ground water criteria to the lower value of the ROD-specified human health criteria or the current MCL.** Since the ROD was signed in September 1986, MCLs have been promulgated for several site contaminants that are lower than the human health criteria defined in the ROD. To ensure the protection of human health through the ground water pathway, the TCEQ has indicated that remedial objectives will reflect the more conservative MCLs in lieu of the human health criteria, consistent with the Applicable or Relevant and Appropriate Regulations (ARARs) presented in the ROD. The current and revised criteria are described in **Table 2** of this five-year review report. Future five-year reviews must re-evaluate the MCLs relative to the human health criteria and adjust the values as appropriate to maintain the protectiveness of the remedy.

5. **Continue to monitor the ground water in accordance with the O&M Plan and continue to monitor the surface water in the two ponds located at the Love Marina.** If contaminant concentrations continue to increase in the shallow ground water, it will be necessary to evaluate measures to address the contamination and potential contaminant migration to the ponds and offsite receptors in ground water. In addition, contaminant concentrations in the two ponds should continue to be monitored to verify that concentrations in the ponds meet the most current surface water quality standards. The Protective Concentration Levels (PCLs) established by the TCEQ will be used to evaluate the contaminants where a surface water quality standard does not exist.

6. **Continue monitoring the surface water to verify the chromium concentration in the west pond.** The TCEQ plans to increase the frequency of dedicated sampling events for the monitoring of contaminant levels in the ponds. If the exceedance of the aquatic life surface water quality standard for chromium is repeated, the source of the chromium contamination in the west pond should be evaluated. Additional action may be required to address the chromium exceedance in surface water to protect aquatic life.

7. **Make arrangements for more convenient access through the northern entrance to the site for sampling events.** The TCEQ has indicated they plan to work out an agreement with the property owner to have access and a separate lock to the northern entrance of the site.

8. **Evaluate the need for deed notices to be put into place describing site hazards for the properties of Mr. William N. Parker and Mr. Larry Anderson.** The TCEQ has indicated they plan to ensure that all affected properties have deed notices in place describing the site hazards.

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Five-Year Review Summary Form

SITE IDENTIFICATION

Site name (from WasteLAN): Sikes Disposal Pits Superfund site

EPA ID (from WasteLAN): TXD980513956

Region: EPA Region 6	**State:** Texas	**City/County:** Crosby/Harris County

SITE STATUS

NPL Status: X Final __ Deleted __ Other (specify):

Remediation status (choose all that apply): __ Under Construction __ Operating X Complete

Multiple OUs? __ Yes X No | **Construction completion date:** January 1995

Has site been put into reuse? __ Yes (partially) X No

REVIEW STATUS

Reviewing agency: X EPA __ State __ Tribe __ Other Federal Agency:

Author: EPA Region 6

Review period: September 2001 through September 2006

Date(s) of site inspection: August 10, 2006

Type of review:
- __ Statutory
- X Policy
- __ Post-SARA
- __ Non-NPL Remedial Action site
- __ Regional Discretion
- X Pre-SARA
- __ NPL-Removal only
- __ NPL State/Tribe-lead

Review number: __ 1 (first) __ 2 (second) X 3 (third) __ Other (specify):

Triggering action:
- __ Actual RA Onsite Construction
- __ Construction Completion
- __ Other (specify):
- __ Actual RA Start
- X Recommendation of Previous Five-Year Review Report

Triggering action date (from WasteLAN): September 2001

Due date (five years after triggering action date): September 2006

Five-Year Review Summary Form

Issues: Operations and Maintenance (O&M) and long-term monitoring (LTM) are ongoing at the site, and based on the data review, site inspection, interviews, and technical assessment, it appears the remedy is functioning as intended by the decision document in the short-term. To ensure continued protectiveness, eight issues were identified in the third five-year review for this site, as described in the following paragraphs. These issues do not currently affect the protectiveness of the remedy, although they need to be addressed to ensure continued protectiveness.

1. **Locks are not present on the access gates to monitor wells GW-7 and GW-27.** Monitor well GW-7 is located next to the railroad bridge over the road that is located along the eastern and northern site boundary. The second five-year review also noted the lack of a lock on the access gate at well GW-7. Monitor well GW-27 is located in the northern portion of the site, approximately 200 feet south of the road located along the eastern and northern site boundary. Access to both monitor wells is not restricted from the road. The lack of locked gates at these two wells means that access by the public or trespassers to the wells is not prevented. Unrestricted access increases the potential for the wells to be damaged or compromised. At a minimum, the gates on the outer security fences should be locked to prevent unauthorized access to the monitor wells. All other site wells are secured by locks on the security fences.
2. **Drums containing purge water are currently stored inside the security fence at monitor wells GW-28/GW-29 and at monitor well GW-35.** The drums at GW-28/GW-29 are rusted. The drum at GW-35 appeared to be in good condition. The O&M Plan stipulates that all purge water will be characterized and properly disposed.
3. **There were two monitor wells (SI-116 and INT-116) located during the site inspection that are not shown on the site maps. These wells are not a part of the current monitoring program.** There is no information available concerning these two wells in the documentation reviewed as part of this five-year review. At the surface, the wells appear to be in good condition. If there are no plans to use these two wells as part of the ongoing monitoring program, they should be abandoned.
4. **Since the ROD was signed, MCLs have been established for several site contaminants that are lower than the human health criteria contained in the ROD.** The ROD identified human health criteria or drinking water standards as the remedial objective for the contaminated ground water. The MCLs established for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-dichloroethane, ethylbenzene, toluene, 1,1,2-trichloroethane, trichloroethene, and vinyl chloride are below the human health criteria defined in the ROD.
5. **The concentrations of several contaminants have recently increased in the shallow aquifer in monitor well GW-28 (benzene, trichloroethene, and vinyl chloride), located near and upgradient of the ponds at the Love Marina.** The magnitudes of the increases are about an order of magnitude or less, and have occurred over the past few years. This monitor well is located along the downgradient (southern) boundary of the site. The increasing contaminant concentrations could be the result of several individual factors or a combination of factors. If increasing contaminant concentrations are verified, they could indicate migration in the ground water. If the contamination is migrating, it could eventually discharge into the ponds at the Love Marina.
6. **In one of two duplicate surface water samples collected from the west pond in the May 2006 sampling event, the chromium concentration exceeded the Texas surface water quality standard for the protection of aquatic life.** In the second duplicate surface water sample, chromium was detected, but was below the standard. The Texas surface water quality standards are specified as an ARAR for the site in the ROD. Chromium was not detected in ground water

Five-Year Review Summary Form

samples collected in May 2006 from upgradient monitor wells GW-15 and GW-30.

7. **Access to the site on the northern entrance is restricted by a lock maintained by the property owner**. Currently, the TCEQ does not have keys to the lock at the northern entrance. During sampling events and site visits, sampling personnel must notify the property owner a day or two prior to the sampling event to gain access to the site through the northern gate.
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Recommendations and Follow-Up Actions: The following recommendations and follow-up actions have been defined for the site:

1. **Place locks on the access gates at monitor wells GW-7 and GW-27**. The access gates should be secured to prevent unauthorized access to wells. The fences and gates are required to restrict access and prevent damage to or tampering with the monitor wells.
2. **Dispose the purge water contained in the drums at monitor wells GW-28/GW-29 and GW-35 in accordance with the O&M Plan.** The drums at GW-28/GW-29 are rusting and should be replaced. All purge water generated as part of sampling activities should be disposed during the following sampling event, and the O&M Plan should be modified to incorporate specific criteria for regular disposal of purge water generated during the ground water sampling activities. TCEQ has indicated the purge water presently onsite will be characterized and disposed during the next semi-annual sampling event.
3. **Evaluate the two wells (SI-116 and INT-116) located on the road along the eastern site perimeter approximately 100 yards north of the intersection with US Highway 90.** TCEQ has indicated they plan to sample and analyze groundwater from monitor wells SI-116 and INT-116 during the next semi-annual sampling event, and make a determination based on the results. These wells should be either incorporated into the ground water monitoring program and the O&M Plan, as appropriate, or properly plugged and abandoned.
4. **Revise the ground water criteria to the lower value of the ROD-specified human health criteria or the MCL.** Since the ROD was signed in September 1986, MCLs have been promulgated for several site contaminants that are lower than the human health criteria defined in the ROD. To ensure the protection of human health through the ground water pathway, the TCEQ has indicated that remedial objectives will reflect the more conservative MCLs in lieu of the human health criteria, consistent with the Applicable or Relevant and Appropriate Regulations (ARARs) presented in the ROD. The applicable concentrations are contained in **Table 2**. Future five-year reviews must re-evaluate the MCLs relative to the human health criteria and adjust the values as appropriate to maintain the protectiveness of the remedy.
5. **Continue to monitor the ground water in accordance with the O&M Plan and continue to monitor the surface water in the two ponds located at the Love Marina.** If contaminant concentrations continue to increase in the shallow ground water, it will be necessary to evaluate measures to address the contamination and potential contaminant migration to the ponds and offsite receptors in ground water. In addition, contaminant concentrations in the two ponds should continue to be monitored to verify that concentrations in the ponds meet the most current surface water quality standards. The Protective Concentration Levels (PCLs) established by the TCEQ will

Five-Year Review Summary Form

be used to evaluate the contaminants where a surface water quality standard does not exist.

6. **Continue monitoring the surface water to verify the chromium concentration in the west pond.** The TCEQ plans to increase the frequency of dedicated sampling events for the monitoring of contaminant levels in the ponds. If the exceedance of the aquatic life surface water quality standard for chromium is repeated, the source of the chromium contamination in the west pond should be evaluated. Additional action may be required to address the chromium exceedance in surface water to protect aquatic life.
7. **Make arrangements for more convenient access through the northern entrance to the site for sampling events.** The TCEQ has indicated they plan to work out an agreement with the property owner to have access and a separate lock to the northern entrance of the site.
8. **Evaluate the need for deed notices to be put into place describing site hazards for the properties of Mr. William N. Parker and Mr. Larry Anderson.** The TCEQ has indicated they plan to ensure that all affected properties have deed notices in place describing the site hazards.

Protectiveness Statement(s): The remedy implemented for the Sikes Disposal Pits Superfund Site is considered protective of human health and the environment in the short-term. Contaminated soils and sludges were incinerated onsite, and the resultant ash used as backfill onsite in the areas of excavation. The only restrictions placed on the site are that the use of the upper and lower aquifers onsite is banned until contaminant concentrations have decreased to below the health based levels or MCLs as listed in **Table 2** of this Third Five-Year Review Report. Natural attenuation is still an appropriate approach to address the ground water contamination onsite. The ground water continues to be monitored to ensure that contaminated ground water is not migrating offsite and that contaminant concentrations are attenuating. Continued O&M will ensure that the selected remedy continues to be protective.

Because the completed remedial action implemented at the Sikes Disposal Pits Superfund Site continues to be protective for the short-term, the overall remedy for the site continues to be protective of human health and the environment for the short-term. The selected remedy will continue to be protective if the recommendations and follow-up actions identified in this five-year review are addressed.

Other Comments: During the third five-year review period, the TCEQ actions to implement the recommendations from the second five-year review in conjunction with ongoing O&M activities have helped to ensure continued protectiveness of human health and the environment at the site.

Third Five-Year Review Report
Sikes Disposal Pits Superfund site

The United States Environmental Protection Agency (EPA) Region 6 has performed a five-year review of the remedial actions implemented at the Sikes Disposal Pits Superfund site located in Crosby, Harris County, Texas. This is the third five-year review for the site, and covers the period since the second five-year review was completed in September 2001. The purpose of a five-year review is to determine whether the remedy at a site remains protective of human health and the environment, and to document the methods, findings, and conclusions of the five-year review in a Five-Year Review Report. Five-Year Review Reports identify issues found during the review, if any, and make recommendations to address the issues. This Third Five-Year Review Report documents the results of the review for the Sikes Disposal Pits Superfund Site, performed in accordance with EPA guidance on five-year reviews.

EPA guidance on conducting five-year reviews is provided by Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-03B-P, *Comprehensive Five-Year Review Guidance* (**EPA, 2001a**) (replaces and supersedes all previous guidance on conducting five-year reviews). EPA followed the guidance provided in this OSWER directive in conducting the five-year review performed for the Sikes Disposal Pits Superfund Site.

1.0 Introduction

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 United States Code (USC) §9601 *et seq.* and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) 300 *et seq.*, call for five-year reviews of certain CERCLA remedial actions. EPA policy also calls for a five-year review of remedial actions in some other cases. The statutory requirement to conduct a five-year review was added to CERCLA as part of the Superfund Amendments and Reauthorization Act of 1986 (SARA), P.L. 99-499. The EPA classifies each five-year review as either 'statutory' or 'policy' depending on whether it is being required by statute or is being conducted as a matter of policy. The third five-year review for the Sikes Disposal Pits Superfund Site is a policy review. The EPA Five-Year Review guidance specifies that five-year reviews are required or appropriate whenever a remedial action results in hazardous substances, pollutants, or contaminants remaining onsite at levels that will not allow for unlimited use or unrestricted exposure.

As specified by CERCLA and the NCP, statutory reviews for such sites are required if the Record of Decision (ROD) was signed on or after the effective date of SARA. Section 121 (c) of CERCLA, states:

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

The implementing provisions of the NCP, as set forth in the CFR, state at 40 CFR 300.430(f)(4)(ii):

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

EPA five-year review guidance further states that a five-year review should be conducted as a matter of policy for the following types of actions:

- A pre-SARA remedial action that leaves hazardous substances, pollutants, or contaminants onsite above levels that allow for unlimited use and unrestricted exposure;
- A pre or post SARA remedial action that, once completed, will not leave hazardous substances, pollutants, or contaminants onsite above levels that allow for unlimited use and unrestricted exposure, but will require more than five years to complete; or,
- A removal-only site on the National Priorities List (NPL) where the removal action leaves hazardous substances, pollutants, or contaminants onsite above levels that allow for unlimited use and unrestricted exposure and no remedial action has or will be conducted (**EPA, 2001a**).

The five-year review for the Sikes Disposal Pits site is being conducted as a matter of EPA policy because the ROD for the site was signed on September 18, 1986, before the effective date of SARA, and because hazardous substances, pollutants, or contaminants remain onsite above levels that allow for unlimited use and unrestricted exposure.

This is the third five-year review for the Sikes Disposal Pits Superfund Site. The triggering action for this policy review is the date of completion of the second five-year review on September 27, 2001.

2.0 Site Chronology

A chronology of significant site-related events and dates is included in **Table 1**, provided at the end of the report text. Sources of this information are listed in **Attachment 1, Documents Reviewed**.

3.0 Background

This section describes the physical setting of the site, including a description of the land use, resource use, and environmental setting. This section also describes the history of contamination associated with the site, the initial response actions taken at the site, and the basis for each of the initial response actions. Remedial actions performed subsequent to the initial response actions at the site are described in **Section 4**.

3.1 Physical Characteristics

The Sikes Disposal Pits Superfund Site is located on a 185-acre site approximately 2 miles southwest of Crosby, Harris County, Texas. The site is bordered by U. S. Highway 90 on the south, the San Jacinto River on the west, and Jackson Bayou on the north. The Riverdale Subdivision is located approximately 500 feet southwest of the site (**EPA, 1986**).

The site currently includes two occupants (resident Mr. Richard Sikes, and the Love Marina). The majority of the site remains vacant. The only features remaining at the site related to the remedy are monitor wells and access roads. An individual security fence with locked gate secures each monitor well. Since completion of the remedy, vegetation has become reestablished (see **Section 6.6** for a discussion of the site inspection).

The site lies completely within the 100-year floodplain of the San Jacinto River, while some portions of the site are within the 10-year and 50-year floodplain. The site is frequently inundated by floodwaters. Surface water at the site ultimately drains to either the San Jacinto River or Jackson Bayou. A shallow aquifer, located within alluvial sand deposits ranging from 17 to 34 feet thick, underlies the site. Ground water in the shallow aquifer flows from the east and northeast towards the southwest across the site. The shallow aquifer discharges into several ponds located at the Love Marina located at the southwest portion of the site. A deeper aquifer is located approximately 65 feet below the shallow aquifer. Separated from these two aquifers by several hundred feet of clay are the Chicot and Evangeline aquifers. These two aquifers supply much of the water supply for metropolitan Houston (**EPA, 1986**). A site location map is provided as **Figure 1.** A map of the site is provided as **Figure 2**.

3.2 Land and Resource Use

The area immediately surrounding the site is largely undeveloped with numerous active and abandoned sand pits and low-lying swampy areas. There are several residences located north and northeast of the site, and the Riverdale Subdivision is located southwest of the site. The shallow aquifer is utilized by many local residents as a supply for drinking water (**EPA, 1986**). The Love Marina is located at the southwest corner of the site. The ponds at the marina are used for recreational fishing. The marina is also used as a boat launch to the San Jacinto River and as a campground. The area is frequented by sport fisherman and water sport enthusiasts on the nearby Jackson Bayou and San Jacinto River. Both Jackson Bayou and the San Jacinto River have designated beneficial uses for contact recreation and high aquatic life habitat by the Texas Commission on Environmental Quality (TCEQ) (Title 30 Texas Administrative Code [TAC] Chapter 307).

3.3 History of Contamination

From about 1955 until 1968, the Sikes site was operated as an illegal open dump. As a result, a wide variety of wastes, including drums and bulk wastes, were disposed onsite. The wastes were primarily chemical wastes, such as benzene, phenols, olefinic compounds, and other organic solvents, that most likely originated from petrochemical companies operating in the surrounding area. Approximately 2,000 55-gallon drums of waste and an indeterminable amount of bulk loads were discovered to have been disposed at the site. The drums were dumped along the sides of roads and bulldozed into pits and low mounds, while the bulk loads were dumped and/or pumped into pits and low-lying areas of the site. Hydrocarbon odors from the site became such a nuisance that local residents at the time complained to both President Lyndon Johnson and Congress. Much of the wastes were deposited into what was known as the main waste pit. The main waste pit was surrounded by a dike. This dike was breached by flooding, which resulted in the transporting of the wastes across a large low-lying area east of the main waste pit known as the overflow area (**EPA, 2001b**).

3.4 Initial Response

Initial investigations of the site were conducted by the EPA and the Texas Department of Water Resources (TDWR) (predecessor agency to the Texas Water Commission (TWC), the Texas Natural Resources Conservation Commission (TNRCC), and the TCEQ) beginning in 1981. At this time, the Sikes family still lived on the site. The Sikes family was relocated away from onsite activities to protect their health and reduce interference with site work (**EPA, 1986**). The investigations discovered the presence of phenolic

compounds, creosote compounds, benzene, toluene, xylenes, and other organic compounds. The TDWR signed a cooperative agreement with the EPA in June 1982 to conduct response actions at the site. TDWR contracted with Lockwood, Andrews, & Newman (LAN) to conduct the Remedial Investigation/Feasibility Study (RI/FS).

The site became one of the first sites ranked under the Hazard Ranking System (HRS), and the site was placed on the NPL in September 1983 (**LAN, 1995**). The RI was conducted in two phases, beginning in May 1983. Initial sampling resulted in an Immediate Removal Action being conducted at the site in June 1983 by the EPA Emergency Response Branch. This removal action resulted in the removal of approximately 440 cubic yards of phenolic tars buried near the temporary living quarters of the Sikes family (**EPA, 1986**). The RI report was finalized and issued by the EPA in July 1985. Due to gaps in the data necessary to complete the FS, the FS was not finalized until June 1986 (**EPA, 1986**).

The site was found to be contaminated with a wide variety of organic and inorganic compounds. The contamination was found to be present in sludges, soils, sediments, ground water, and surface water. The depth of contamination associated with the soils and sludges was from 3 to 18 feet. Most of the surface water bodies and underlying sediments at the site were determined to be contaminated. The shallow aquifer was found to be highly contaminated. The deeper aquifer was found to be slightly contaminated, and it was determined that the underlying Chicot and Evangeline Aquifers were in no danger from the contamination. The primary migration and exposure pathways for the contamination were determined to be: 1) direct contact with sludges and contaminated soils, 2) ground water consumption, 3) direct contact with contaminated surface waters, and 4) inhalation of toxic organic compounds through uncontrolled disturbance of the waste (**EPA, 1986**).

3.5 Basis for Taking Action

The purpose of the response actions conducted at the Sikes Disposal Pits Superfund Site was to protect public health and welfare and the environment from releases or threatened releases of hazardous substances from the site. The major threats posed by the site were the direct human contact with sludges and contaminated soils, continued direct contamination of the upper aquifer, potential contamination of the lower aquifer, direct contact with contaminated surface waters, and releases of toxic volatile organic compounds into the air through uncontrolled disturbances of the waste (**EPA, 1986**).

4.0 Remedial Actions

The third five-year review addresses actions taken at the site since completion of the Second Five-Year Review Report, completed on September 27, 2001 (**EPA, 2001b**). Included in this section is a description of the remedy objectives, selection, and implementation at the Sikes Disposal Pits Superfund Site. It also describes the ongoing Operations and Maintenance (O&M) activities performed and the overall progress made at the site in the period since completion of the second five-year review. The TCEQ manages the site O&M activities.

4.1 Remedy Objectives

The specific remedial objectives identified in the ROD for the Sikes Disposal Pits Superfund Site Remedial Action (RA) were:

- Prevent human contact with contaminated soils and wastes.
- Minimize the impact of contaminated runoff.
- Prevent human contact with contaminated surface water.
- Minimize site-related degradation of the San Jacinto River and Jackson Bayou.
- Prevent use of contaminated ground water in the upper aquifer.
- Protect against contamination of the lower aquifer.
- Prevent migration of wastes offsite during flood events.
- Prevent use of ground water (lower aquifer) contaminated above background.
- Minimize the potential of any adverse air discharge (**EPA, 1986**).

The ROD established the following criteria for the site:

- No direct contact with wastes containing greater than 100 parts per million (ppm) polynuclear aromatic hydrocarbons (PAHs).
- Surface water quality criteria would be met to minimize the impacts of contaminated runoff, prevent human contact with contaminated surface water, minimize site related degradation of the San Jacinto River and Jackson Bayou, and prevent migration of waste offsite during flood events. Criteria specified in the ROD to minimize the impact of contaminated runoff included 0.1 milligrams per liter (mg/l) benzene, 0.3 mg/l vinyl chloride, 0.3 mg/l total phenols and metals, per Section 156.19.15.002 of the Texas Water Code.

- The ROD specified that drinking water standards and human health criteria (10^{-4} to 10^{-7} risk range) are the criteria that would apply to prevention of use of contaminated ground water. The human health criteria and drinking water standards, expressed as Maximum Contaminant Levels (MCLs), for the currently monitored contaminants are provided in **Table 2**.
- The ROD specified that existing background water quality in the lower aquifer would apply to protection of the lower aquifer (**EPA, 1986**).

4.2 Remedy Selection

The ROD for the site was signed on September 18, 1986. The ROD addressed the threats posed by the site to human health and the environment. The site was also addressed through one Immediate Removal Action as described in **Section 3.4**. The remedy selected in the 1986 ROD for the Sikes Disposal Pits Superfund Site consisted of the following elements:

- Excavation of soil and sludge containing more than 10 ppm of volatile organic compounds;
- Onsite incineration of excavated soil and sludge;
- Onsite disposal of residue ash from incineration;
- Backfilling of pits and excavated areas;
- Flood protection during remedial action;
- Collection and treatment of contaminated surface water;
- Prevent use of contaminated ground water while it naturally attenuates (Institutional Controls) and;
- Monitoring of the upper and lower aquifers (**EPA, 1986**).

4.3 Remedy Implementation

The TWC retained LAN to perform the Remedial Design (RD). The RD included supplemental investigations to determine the exact extent of and locations of waste excavation. The RD involved the design of the onsite incinerator and flood control and protection structures. The RD documents also addressed excavation of hazardous materials, site security, air monitoring requirements, and health and safety requirements. The RD phase was completed in 1988, and the contract documents for the RA were sent out for bid in October 1989. No responsive bids were received, and the contract was restructured into two phases and re-bid. The RA contract was awarded to IT-Davy (a joint venture of International Technology Corp. and Davy-McKee Corp.) for both contract phases. The TWC signed the RA contract with IT-Davy in July 1990, with LAN performing construction management and oversight for the TWC (**EPA, 2001b**).

In October 1990, IT Davy began the Phase A RA activities. This work included preparing the site for remediation and construction of treatment facilities. Activities included mobilization to the site, construction of an expanded security fence and establishing 24-hour security, general site improvements such as construction of access roads, marking known contaminated areas, construction of flood protection structures, installation and testing of the incinerator and water treatment plant, installation of the air monitoring network, and installation of an onsite laboratory. Phase A activities were completed 80 days ahead of schedule on January 24, 1992 (**EPA, 2001b**).

The Phase B RA commenced immediately after completion of Phase A activities. Phase B activities included site remediation and monitoring activities. The trial burn was conducted in early April 1992. The TNRCC issued Interim Operating Conditions for the incinerator while reviewing the results of the trial burn. The TNRCC issued Production Operating Conditions for the incinerator on August 26, 1992, after approval of the Trial Burn Report. Excavation and incineration activities were completed on June 11, 1994, about 18 months ahead of schedule. IT-Davy excavated and remediated 496,253 tons of contaminated soil and sludge. Also, approximately 350 million gallons of contaminated water were treated as part of the dewatering and storm water treatment process. The air monitoring network detected no levels of contaminants of concern leaving the site during remediation. All the ash from the incinerator was determined to be acceptable for use as backfill at the site. The final inspection was conducted in December 1995, and the Final Certificate of Completion was issued in December 1995 (**EPA, 2001b**).

4.4 Operations and Maintenance and Long-Term Monitoring

The TCEQ is currently responsible for O&M activities at the site, which includes routine site maintenance of the access roads, monitor wells, and fences surrounding each well, as well as semi-annual ground water sampling of 6 shallow monitor wells and 2 deep monitor wells. These wells are all located on the down-gradient portion of the site (along the southern portion of the site). In addition, Mr. Omar Valdez, TCEQ Project Manager for the site, indicated that sampling of the two ponds at the Love Marina has been added as an O&M requirement for the site. All samples are analyzed for selected volatile organic compounds (VOCs) and metals. During the year in which a five-year review is completed for the site, all Site wells (11 shallow and 5 deep) are sampled for selected metals, and nine Site wells (7 shallow and 2 deep) are sampled for selected VOCs. This sampling was performed in May 2006 prior to the start of this five-year review. Also, surface water samples were collected from the ponds at the Love Marina during May 2006 (**SHAW, 2006**).

The O&M Plan describes the requirements for O&M at the site. In addition to the ground water sampling frequency and analytical parameters to be tested, the O&M Plan also outlines the sampling procedures, analytical testing requirements, waste management procedures, data evaluation and reporting requirements, maintenance requirements, and the health and safety plan. The O&M Plan contains provisions for re-evaluating the baseline conditions and analytical parameters. Currently, the O&M Plan states that since contaminant concentrations have decreased or remained stable, the semi-annual sampling for the current indicator parameters (listed in **Table 2**) will continue. The O&M Plan also indicates that, due to the presence of nearby surface water bodies, ground water elevation data are not accurate without known surface water body elevations. The EPA and TCEQ have concurred that except following significant rainfall events, the shallow ground water at the site flows to the southwest and discharges into the ponds at the Love Marina. Therefore, potentiometric surface mapping is no longer performed at the site (**DBS&J, 2003a**).

O&M costs were projected in the ROD to be $41,000 annually. The actual costs for O&M at the site, as provided by the TCEQ, are approximately $70,000 annually (see **Attachment 2, TCEQ Interview Record Form**). The only costs associated with O&M at the Sikes site are related to ground water sampling and routine maintenance. While an increase in O&M costs can be considered an early indication of remedy problems, Mr. Valdez/TCEQ indicated that the increase in costs for this site are directly related to increases in consulting services costs and laboratory costs for the ground water sampling. Therefore, the O&M costs incurred at this site are not currently considered an indication of potential remedy problems.

4.5 Progress Since Initiation of Remedial Action

Remedial activities specified in the ROD were implemented as planned. The remedy for the site consisted of excavation of contaminated soils and sludges with greater than 10 ppm VOCs, onsite incineration of excavated soils and sludges, onsite disposal as backfill of the residue ash, additional backfilling of excavated areas and pits with clean soil as necessary, flood protection during remedial action, storm water and surface water run-on and run-off collection and treatment, natural attenuation of the upper aquifer, and post closure monitoring of the upper and lower aquifer (**EPA, 2001b**). The RA for the site resulted in the incineration of approximate 496,253 tons of contaminated soil and sludge and the treatment and discharge of approximately 350 million gallons of contaminated water (**EPA, 2006**).

The EPA completed the first five-year review of the site in April 1998. The review recommended that monitor wells GW-28 and GW-30 be monitored semi-annually for benzene, 1,2-dichloroethane (1,2-

DCA), 1,1,2-trichloroethane (1,1,2-TCA), and vinyl chloride. Also, the EPA recommended that the TNRCC sample monitor well GW-18 semi-annually for VOCs, and that well GW-29, which is screened in the deeper aquifer, be monitored to verify that contamination has not migrated into the lower aquifer (**EPA, 1998**). These recommendations were implemented as suggested. Finally, the first five-year review stated that the State should determine if a threat exists to the pond located down-gradient if action levels stipulated by the ROD continue to be exceeded in these wells after two years (**EPA, 1998**). This recommendation was also included in the second five-year review (**EPA, 2001b**). The ponds at the Love Marina were sampled in 2006 prior to this third five-year review.

The Second Five-Year Review Report was signed on September 27, 2001, and is further discussed in **Section 5.0**. Since the completion of the second five-year review, nine semi-annual ground water sampling events have been conducted at the site. The analytical data are further discussed in **Section 6.4**.

5.0 Progress Since the Second Five-Year Review

The second five-year review of the Sikes Disposal Pits Superfund Site was completed in September 2001. The findings of the second five-year review, the status of recommendations and follow-up actions, the results of implemented actions, and the status of any other issues are described in the following sections.

5.1 Protectiveness Statements from Second Five-Year Review

The Second Five-Year Review Report concluded that the remedial actions implemented at the Sikes Disposal Pits Superfund Site were protective of human health and the environment. The Second Five-Year Review Report stated that the only restriction placed on the site was the ban on the use of the upper and lower aquifers onsite until contaminant concentrations decreased to below the human health criteria defined in the ROD. Also, it was stated that natural attenuation was still appropriate to address the ground water contamination.

5.2 Second Five-Year Review Recommendations and Follow-up Actions

The second five-year review of the Sikes Disposal Pits Superfund Site, completed in September 2001, recommended the following follow-up actions:

- Erect a fence around monitor well GW-25.
- Replace locks on the security fences around monitor wells GW-7 and GW-23.

- As recommended in the first five year review, perform an assessment of the two ponds south of monitor wells GW-28 and GW-30 to determine if contaminated groundwater documented in these wells is impacting these ponds since the concentrations of contaminants in groundwater have not decreased below human health criteria at both of these wells.
- Compare the metals concentrations from the current ground water sampling event to the results from previous sampling events to determine if there were any pronounced changes in metals concentrations (**EPA, 2001b**).

5.3 Status of Recommended Actions

This section describes the current status of implementation of the recommendations included in the Second Five-Year Review Report. O&M activities have continued at the site as dictated by the O&M Plan. A chain link fence and gate were erected at monitor well GW-25 to prevent unauthorized access and vandalism to the well (further discussed in **Section 6.6**). A lock was installed at the gate preventing unauthorized access to monitor well GW-23 (further discussed in **Section 6.6**). The gate at monitor well GW-07 is still missing a lock (further discussed in **Section 6.6**). Comparisons of metals and VOC concentration values to previous results are included in the annual ground water monitoring reports for each year. Water levels in ground water and surface water at the site are not collected as stated in **Section 4.4**. However, the ponds at the Love Marina were sampled during 2006, and the results are further discussed in **Section 6.4**. Sampling of the ponds has been incorporated as an O&M requirement for the site (see **Attachment 2, TCEQ Interview Record Form**).

A summary of the recommendations in the Second Five-Year Review Report and the follow-up actions taken is provided in **Table 3**.

6.0 Five-Year Review Process

This third five-year review for the Sikes Disposal Pits Superfund Site has been conducted in accordance with EPA's Comprehensive Five-Year Review Guidance dated June 2001 (**EPA, 2001a**). Interviews were conducted with relevant parties; a site inspection was conducted; and applicable data and documentation covering the period of the review were evaluated. The activities conducted as part of this review are described in the following sections.

6.1 Administrative Components

The five-year review for this site was initiated by the EPA. The review team was led by the EPA Remedial Project Manager (RPM) for this site, Mr. Gary Miller/EPA Region 6. The components of the review included community involvement, document review, data review, a site inspection, interviews, and development of this Third Five-Year Review Report.

6.2 Community Involvement

A public notice announcing initiation of the third five-year review for the Sikes Disposal Pits Superfund Site was published in the *Crosby Courier* on August 17, 2006. Upon signature, the Third Five-Year Review Report will be placed at the following information repositories for the site: Crosby Public Library, the TCEQ office in Austin, Texas, and the EPA Region 6 office in Dallas, Texas. A notice will then be published in the *Crosby Courier* to summarize the findings of the review and announce the availability of the report at the information repositories. Copies of the two public notices are provided in **Attachment 5** to this report.

6.3 Document Review

This five-year review for the site included a review of relevant site documents, including decision documents, the O&M Plan, O&M reports and related monitoring data, and the First and Second Five-Year Review Reports. Documents that were reviewed are listed in **Attachment 1**.

6.4 Data Review

Data collected since the previous five-year review includes ground water sampling analytical results and surface water sampling analytical results. The analytical results for metals in the shallow and deep aquifers are provided in **Tables 4** and **5**, respectively. The analytical results for VOCs in the shallow and deep aquifers are provided in **Tables 6** and **7**, respectively. Each table also indicates which wells are sampled semi-annually and which wells are sampled only during the year of a five-year review. The analytical results for the samples collected from the two ponds at the Love Marina are provided in **Table 8**.

The ROD specified human health criteria for the ground water that must be met before the ground water at the site can be used. Until these criteria are met, there is a ban on the use of the ground water in the shallow and deep aquifers. In addition, the ROD specified that drinking water standards, expressed as MCLs, are an Applicable or Relevant and Appropriate Requirement (ARAR) that must be met for the upper ground water zone. Since the ROD was issued in 1986, MCLs have been revised or new MCLs

promulgated for various ground water contaminants at the site. The human health criteria in ground water are listed along with the current MCLs in **Table 2**. As is further discussed in **Section 7.2**, the lower of the ROD-specified human health criteria or the MCL is designated as the cleanup criteria for ground water at the site. The following paragraphs discuss the ground water data relative to the lower standard that applies, and **Tables 4** through **7** show the ground water criteria applicable to each contaminant in ground water.

The metals analytical results for monitor wells completed in the shallow aquifer are provided in **Table 4**. Since completion of the second five-year review (September 2001), beryllium, lead, mercury, and nickel have exceeded the ground water criteria in at least one sample. Mercury concentrations exceeded the criteria in wells GW-15 and GW-32 in January 2002 and in well GW-30 in April and July 2003. Currently, mercury concentrations are below the ground water criteria at all monitor wells. Beryllium, lead, and nickel concentrations currently exceed the ground water criteria, and the criteria exceedences are more widespread for these contaminants.

Beryllium concentrations in the shallow aquifer currently exceed the ground water criteria of 0.037 micrograms per liter (µg/L) at monitor wells GW-15, GW-18, GW-23, and GW-28 (see **Table 4**). However, it should be noted that the laboratory detection limit was above 0.037 µg/L at the monitor wells where beryllium was not detected. It is possible that beryllium concentrations in other monitor wells are above the criteria, but that the concentrations were too low to be detected. Monitor well GW-23 is located north, and upgradient, of the site. Monitor wells GW-15, GW-18, and GW-28 are all located on the downgradient (southern) boundary of the site (see **Figure 2**). These wells are upgradient of the ponds at the Love Marina.

Figure 3 shows the beryllium concentration trends since 1999 (when O&M monitoring began) for the six monitor wells completed in the shallow aquifer and currently monitored semi-annually at the site. For results where beryllium was not detected, a concentration of one-half the detection limit (see **Table 4**) was used for graphing the concentration trends. Prior to June 2002, the beryllium concentrations were highly variable. Since June 2002, the beryllium concentrations have become more stable. Monitor well GW-15 is the only well where the beryllium concentration is currently higher than when O&M monitoring began. However, the beryllium concentration in GW-15 varied widely. Since June 2002, the beryllium concentration in this well has been between 1.5 µg/L and 5.03 µg/L. In wells GW-18 and GW-28, the

beryllium concentrations were generally decreasing with the exception of the last sampling event, completed in May 2006, when the concentration increased slightly.

Lead concentrations in the shallow aquifer currently exceed the ground water criteria of 15µg/L at monitor wells GW-15, GW-23, and GW-34 (see **Table 4**). Monitor wells GW-23 and GW-34 are located in upgradient areas of the site. Monitor well GW-15 is located on the downgradient (southern) boundary of the site (see **Figure 2**). This well is upgradient of the ponds at the Love Marina.

Figure 4 shows the lead concentration trends since 1999 for these three monitor wells and well GW-18 (which has historically shown concentrations exceeding 15 µg/L). For results where lead was not detected, a concentration of one-half the detection limit (see **Table 4**) was used for graphing the concentration trends. Prior to January 2002, the lead concentrations in wells GW-15 and GW-18 were variable. The lead concentration in GW-18 has decreased since January 2002 and is currently less than 15 µg/L. In GW-15, the lead concentration decreased between January 2002 and July 2003. Since that time, lead concentrations have varied with high lead concentrations detected in July 2004 and May 2006. The lead concentrations in wells GW-23 and GW-34 were variable prior to December 2000. The lead concentration then decreased in both wells through June 2002. These two wells are not included in the current semi-annual sampling schedule, and the wells were not sampled again until May 2006. The lead concentrations in wells GW-23 and GW-34 were slightly above the ground water criteria in May 2006 at 20.9 µg/L and 17.4 µg/L respectively.

Nickel concentrations in the shallow aquifer currently exceed the ground water criteria of 13.4 µg/L at monitor well GW-18 (see **Table 4**). Monitor well GW-18 is located on the downgradient (southern) boundary of the site (see **Figure 2**). This well is upgradient of the ponds at the Love Marina. **Figure 5** shows the nickel concentration trends since 1999 (when O&M monitoring began) for the six monitor wells completed in the shallow aquifer and currently monitored semi-annually at the site. For results where nickel was not detected, a concentration of one-half the detection limit (see **Table 4**) was used for graphing the concentration trends. Prior to January 2002, the nickel concentrations were highly variable. Since January 2002, the nickel concentrations have been decreasing or stable in each well.

The metals analytical results for monitor wells completed in the deeper aquifer are provided in **Table 5**. Since completion of the second five-year review (September 2001), beryllium and lead are the only contaminants to have exceeded the ground water criteria in at least one sample. Beryllium exceeded the

ground water criteria in monitor wells GW-29 and GW-31 in July 2003. Lead exceeded the ground water criteria in monitor well GW-31in May 2006 with a concentration of 136 µg/L, which represents the highest concentration reported at both the shallow and deeper aquifers.

The VOCs analytical results for monitor wells completed in the shallow aquifer are provided in **Table 6**. Since completion of the second five-year review (September 2001), benzene, 1,2-DCA, 1,1,2- TCA, trichloroethene (TCE), and vinyl chloride have exceeded the ground water criteria in at least one sample. Benzene, 1,2-DCA, TCE, and vinyl chloride exceeded the ground water criteria in wells GW-28 and GW-30 in at least one sample since September 2001, while 1,1,2-TCA exceeded the ground water criteria in well GW-28 only. Benzene and vinyl chloride concentrations currently exceed the ground water criteria in both wells. TCE and 1,1,2-TCA concentrations currently exceed the ground water criteria in well GW-28 only, and 1,2-DCA concentrations are currently below the ground water criteria.

Benzene concentrations in the shallow aquifer currently exceed the ground water criteria of 5 µg/L at monitor wells GW-28 and GW-30 (see **Table 6**). Both wells are located on the downgradient (southern) boundary of the site (see **Figure 2**). These wells are upgradient of the ponds at the Love Marina. **Figure 6** shows the benzene concentration trends since 1999 (when O&M monitoring began) for both monitor wells. Between February 2000 and April 2003, the benzene concentration in well GW-28 was variable, but the overall trend was a decreasing concentration. The benzene concentration decreased in GW-28 through July 2005, when the concentration was 8.70 µg/L. The benzene concentration increased significantly in May 2006 to a concentration of 134 µg/L. The benzene concentration in well GW-30 increased between June 1999 and June 2001. The benzene concentration was then variable in GW-30 through July 2003. Since July 2003, the benzene concentration trend has been stable in this well.

1,2-DCA concentrations in the shallow aquifer do not currently exceed the ground water criteria of 5 µg/L in any monitor wells (see **Table 6**). **Figure 7** shows the 1,2-DCA concentration trends since 1999 (when O&M monitoring began) for monitor wells GW-28 and GW-30. Between February 1999 and July 2005, the overall 1,2-DCE concentration trend in both wells was decreasing. Although the concentration remains below 5 µg/L, the 1,2-DCA concentration did increase slightly in both wells in May 2006.

1,1,2-TCA concentrations in the shallow aquifer currently exceed the ground water criteria of 5 µg/L at monitor well GW-28 only (see **Table 6**). This well is located on the downgradient (southern) boundary of the site (see **Figure 2**) and is upgradient of the ponds at the Love Marina. **Figure 8** shows the 1,1,2-TCA

concentration trend since 1999 (when O&M monitoring began) for GW-28. Since December 2000, with the exception of the concentrations reported in this well in July 2004 (30.4 µg/L) and February 2005 (not detected), the 1,1,2-TCA concentration has remained stable at between 6 µg/L and 12.2 µg/L.

TCE concentrations in the shallow aquifer currently exceed the ground water criteria of 5 µg/L at monitor well GW-28 only (see **Table 6**). This well is located on the downgradient (southern) boundary of the site (see **Figure 2**) and is upgradient of the ponds at the Love Marina. **Figure 9** shows the TCE concentration trend since 1999 (when O&M monitoring began) for GW-28. Between January 1999 and February 2004, the TCE concentration decreased in this well to below 5 µg/L. Since February 2004, the TCE concentration in this well has been variable, with most results being above the ground water criteria.

Vinyl chloride concentrations in the shallow aquifer currently exceed the ground water criteria of 2 µg/L in monitor wells GW-28 and GW-30 (see **Table 6**). **Figure 9** shows the vinyl chloride concentration trends since 1999 (when O&M monitoring began) for monitor wells GW-28 and GW-30. Between February 2000 and July 2005, the vinyl chloride concentration trend in well GW-28 was decreasing. Vinyl chloride was not detected in February and July 2005. The vinyl chloride concentration increased significantly from July 2005 to May 2006 from a concentration of not detected to 39.9 µg/L. The vinyl chloride concentration in well GW-30 has been variable since June 1999. The concentration increased between June 1999 and July 2000. The concentration then decreased through April 2003. Since then, the vinyl chloride concentration has increased in GW-30.

The VOCs analytical results for monitor wells completed in the deeper aquifer are provided in **Table 7**. Since completion of the second five-year review (September 2001), no VOC concentrations have exceeded the ground water criteria in the deeper aquifer.

Surface water samples were collected from the two ponds located south of monitor wells GW-30 (the west pond) and GW-28 (the east pond) in May 2006. These samples were analyzed for selected metals and VOCs (the same compounds analyzed for in the ground water samples). The analytical results from these samples are provided in **Table 8**. The TCEQ surface water quality standards, as specified in 30 TAC 307, are also provided in **Table 8** for comparison of the surface water sample results. Where a surface water quality standard was not available for comparison, a Protective Concentration Level (PCL) was derived based on TCEQ guidance (**TCEQ, 2006**). The surface water quality standards and PCLs listed in **Table 8**

are for the protection of aquatic life and for the protection of human health through the ingestion of fish in the ponds. Freshwater criteria were used to evaluate the surface water data from the ponds.

Chromium, lead, and nickel were detected in the west pond (**Table 8**). Lead concentrations currently exceed the ground water criteria in well GW-15, located upgradient of the west pond. Lead, nickel, benzene, and vinyl chloride were detected in the east pond (**Table 8**). Nickel, benzene, and vinyl chloride currently exceed the ground water criteria in well GW-28, located upgradient of the east pond. The chromium concentration in the duplicate sample (7.23 µg/L) collected from the west pond exceeded the surface water quality standard for the protection of aquatic life (4.74 µg/L). The chromium concentration in the normal sample (2.22 µg/L) was less than the aquatic life standard. Chromium was not detected in the ground water samples from monitor wells GW-15 or GW-30 (see **Table 4**), located upgradient of the west pond. No other contaminants exceeded the aquatic life or human health surface water quality standards or PCLs in surface water.

6.5 Interviews

An interview was conducted with Mr. Richard O. Sikes, owner of the site, during the site inspection, and by e-mail with Omar Valdez, TCEQ Project Manager for the site. Copies of the Interview Record Forms are provided in **Attachment 2**.

Mr. Sikes was interviewed during the site inspection conducted on August 10, 2006. Mr. Sikes indicated that he was not aware of any problems related to the site. As a property owner at the site, he did indicate that he sometimes has problems with people trespassing onto the site to fish in his ponds. He also stated that he tells those people he allows to fish in his ponds not to eat the fish (there are currently no restrictions on fish consumption related to the site), and he expressed an interest in finding out the results of the surface water samples collected at the site.

Mr. Omar Valdez provided interview responses via email on August 16, 2006. Mr. Valdez' overall impression of the remedy at the site since the previous five-year review was that the O&M has adhered to the current version of the O&M Plan. He did indicate that sampling of the two ponds at the Love Marina is now a part of the O&M for the site. He was not aware of any community concerns related to the site, and he further stated that O&M activities are communicated to the two property owners (Mr. Sikes and Mr. Love) most affected by O&M activities. Finally, Mr. Valdez stated that he was not aware of any incidents or problems at the site that have affected O&M.

6.6 Site Inspection

A site inspection was conducted at the site on August 10, 2006. The completed site inspection checklist is provided in **Attachment 3**. Photographs taken during the site inspection are provided in **Attachment 4**.

The site is privately owned, and except for banning the use of ground water in the upper and lower aquifers onsite, there are no restrictions placed on land use at the site. However, the fence that was erected around the site during the RA is still mostly intact. Currently, access is restricted to almost all wells (see **Photographs 1, 33, 34,** and **44** as an example) by a fence with a locked gate. A fence had been erected around monitor well GW-25 since the second five-year review (**Photograph 44**). A warning sign is posted at each well location (see **Photographs 1, 4,** and **7** as an example), and there was no indication that vandalism had occurred in the vicinity of any of the wells. There was not a lock for the gate at monitor well GW-7, and the lock on the gate at monitor well GW-27 was broken (**Photographs 24** and **32**). Monitor wells GW-19, GW-23, GW-29, GW-34, and GW-35 were missing locks or had broken locks on the outer protective well casings (**Photographs 3, 9, 20, 35,** and **42**). Each well appeared to be maintained in good condition. Three drums of what is assumed to be purge water were stored inside the fence at wells GW-28/GW-29 (**Photograph 7**), and one drum was stored inside the fence at well GW-35 (**Photograph 19**). The drums stored at GW-28/GW-29 appeared to be deteriorating. Vegetation has been reestablished over the site (**Photographs 17, 18, 22,** and **48**), and has grown onto the fences and concrete pads at several monitor wells. Two monitor wells, not included in the current Site O&M Plan, were located at the site (**Photographs 37 – 39**). These two wells, identified as SI-116 and INT-116, were located next to the road that runs along the east perimeter of the site, approximately 100 yards north of the gate where the road intersects U. S. Highway 90.

7.0 Technical Assessment

The five-year review must determine whether the remedy at a site is protective of human health and the environment. The EPA guidance describes three questions used to provide a framework for organizing and evaluating data and information and to ensure all relevant issues are considered when determining the protectiveness of a remedy. These questions are assessed for the site in the following paragraphs. At the end of the section is a summary of the technical assessment.

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

The original decision document for the Sikes Disposal Pits Superfund Site is the September 18, 1986 ROD (**EPA, 1986**). The site is now undergoing semi-annual ground water sampling and O&M activities. Based on the data review, site inspection, and interviews, it appears that the Sikes Disposal Pits Superfund Site remedy is functioning as intended by the ROD. Opportunities for optimization, early indicators of potential remedy problems, and institutional controls are described below.

Opportunities for Optimization. No opportunities for optimization have been identified. The ground water sampling frequency is semi-annual for the six shallow and two deep monitor wells located along the downgradient (southern) boundary of the site. In addition, the two ponds at the Love Marina have been included in the sampling program to ensure that contaminants are not migrating from the shallow ground water into the ponds. The current O&M Plan is sufficient to monitor Site ground water and the two ponds, and should continue as long as contaminant concentrations remain above the ground water criteria listed in **Table 2**.

Early Indicators of Potential Remedy Problems. There were no observed indicators of potential problems that would impact the protectiveness of the remedy. Although ground water monitor results indicate that several contaminants exceed the site ground water criteria in the shallow aquifer, no contaminants exceed the ground water criteria in the deeper aquifer. Contaminant concentrations also exceed the ground water criteria in monitor wells upgradient of the two ponds at the Love Marina. Continued surface water sampling will provide warning if contaminants are migrating into the surface water at levels that are above the TCEQ's surface water quality standards.

Institutional Controls. Three deed notices describing the site hazards and the prohibition on use of contaminated ground water are in place for the Sikes Disposal Pits Superfund Site. Copies of the deed notices are included in **Attachment 6**. Institutional controls are discussed further in **Section 8.0**.

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

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics. There have been no changes in human health exposure pathways for the site since completion of the second five-year

review. In addition, no new contaminants or routes of human exposure have been identified for the site as part of this five-year review. Post-remediation site conditions have eliminated or reduced human health exposure pathways present at the site.

The ROD did not include specific remedial objectives related to the protection of aquatic life in the ponds located at the site. However, the ROD did specify as a remedial objective that the remedy would minimize the degradation of the San Jacinto River and Jackson Bayou. The potential migration of contaminated ground water into surface water was evaluated as a potential migration pathway in the ROD. The ROD also evaluated human exposure to contaminants through fish consumption and through contact with contaminated surface water. However, the ROD contains no language specific to ecological exposures and risks. Potential risk to aquatic life in surface water at the site is a newly identified exposure pathway for the site identified in this five-year review.

Changes in Applicable or Relevant and Appropriate Regulations (ARARs). ARARs and other requirements 'to be considered' (TBCs) for this site were identified in the ROD dated September 18, 1986. This five-year review included identification of and evaluation of changes in these ARARs to determine whether such changes may affect the protectiveness of the selected remedy.

The Sikes Disposal Pits ROD identified the following ARARs and TBCs as having an impact on the proposed remedy:

1. Resource Conservation and Recovery Act (RCRA) requirements for the design, construction, operation, and maintenance of hazardous waste facilities within the 100-year floodplain, as regulated under 40 CFR 264 Subpart B.

2. RCRA requirements for the characterization of hazardous wastes at 40 CFR 261, and RCRA requirements for manifesting and offsite transportation of hazardous wastes, as regulated under 40 CFR 262 and 40 CFR 263.

3. RCRA requirements applicable to ground water protection, as regulated under 40 CFR 264 Subpart F, which state the concentrations of hazardous substances allowable in ground water.

4. RCRA requirements for the construction of hazardous waste landfills, as regulated at 40 CFR 264 Subpart N.

5. RCRA requirements for operators of hazardous waste incinerators, as regulated at 40 CFR 264 Subpart O.

6. Ambient Water Quality Criteria at 40 CFR 131, and the National Primary Drinking Water Standards, expressed as MCLs at 40 CFR141, established under the Safe Drinking Water Act (SWDA).

7. Technical and substantive requirements of the National Pollutant Discharge Elimination System (NPDES), established under the Clean Water Act (CWA) and regulated at 40 CFR 122 and 125).

8. Occupational Safety and Health Act (OSHA) requirements for the protection of workers at hazardous waste sites, as regulated at 29 CFR 1910.

9. Federal Standards for Toxic Pollutant Effluent, as regulated at 40 CFR 129.

10. Substantive and technical requirements for the emissions of primary air pollutants during remedial actions involving waste excavation and incineration, as regulated under the Clean Air Act (CAA) and the National Ambient Air Quality Standards (NAAQS).

11. Department of Transportation (DOT) requirements governing the transportation of hazardous materials, as regulated at 49 CFR 171-177.

12. Requirements of the Texas Surface Water Quality Criteria for the protection of designated uses of surface water bodies in the State of Texas.

13. Texas Air Control Board regulations governing the emissions of pollutants from point sources.

14. Requirements of the Texas Solid Waste Act governing the transportation and disposal of wastes.

15. Requirements of the Executive Order on Floodplain Management, Executive Order No. 11988, to minimize impacts to floodplains during remedial action.

16. The EPA's Groundwater Protection Strategy.

The RA at this site has been completed, and the current operations at the site involve only O&M activities related to ground water sampling and site maintenance. No hazardous waste treatment or disposal facilities remain at the site. Therefore, the only ARARs that still apply to the remedy at the site are those related to

the contaminated ground water, O&M activities, and the Texas Surface Water Quality Criteria. These ARARs include the RCRA requirements to characterize wastes at 40 CFR 261, RCRA requirements for allowable limits of contaminants in ground water at 40 CFR 264 Subpart F, the Ambient Water Quality Criteria at 40 CFR 131, the MCLs at 40 CFR 141, OSHA regulations at 29 CFR 1910, and the Texas Surface Water Quality Criteria. Also, the EPA's Groundwater Protection Strategy would still apply, but since it is not a regulation or law, would be a TBC for the remedy.

The RCRA requirements for the characterization of hazardous wastes and the DOT requirements for the transportation of hazardous materials apply to purge water generated during ground water sampling activities. Since the start of O&M, no water from sampling activities has been characterized as hazardous, and no significant applicable changes have been made to these regulations that affect the remedy's protectiveness. The analytical testing requirements and discharge criteria for purge water are contained in the O&M Plan. If the purge water meets the criteria in the O&M Plan, then the purge water is disposed of to ground surface. To-date, all purge water has been disposed of in this manner, and no purge water has required offsite shipment for disposal.

The OSHA regulations at 29 CFR 1910 are addressed through a site specific health and safety plan for the O&M activities at the site. This plan should be updated regularly to reflect any new changes to these regulations.

The RCRA requirements for allowable levels of contaminants in ground water and the MCLs still apply to the contaminated ground water. Since the ROD was signed in 1986, MCLs have been promulgated or revised for many of the site ground water contaminants. The current MCLs, along with the ROD-specified human health criteria, are provided in **Table 2**. As shown in **Table 2**, the current MCL is lower than the ROD-specified human health criteria for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-DCA, ethylbenzene, toluene, 1,1,2-TCA, TCE, and vinyl chloride. The ROD designates the MCLs as ARARs for the site, and the MCLs were not waived in the ROD. To ensure protectiveness of the remedy relative to the site ground water, the ground water cleanup criteria should be established at the lower of the ROD-specified human health criteria or the MCL for each contaminant.

The Texas Surface Water Quality Criteria are now called the Texas Surface Water Quality Standards. These regulations would only apply if contaminated ground water is discharging into Jackson Bayou, the San Jacinto River, or other surface water bodies. These standards are regulated at 30 TAC 307, and the

regulations are updated regularly. These regulations were last updated in 2000. No changes in these regulations have occurred which would question the effectiveness of the remedy. The TCEQ has also issued guidance on the calculation of surface water PCLs where no surface water quality standard has been promulgated. The guidance document, *Determining PCLs for Surface Water and* Sediment (RG-366/TRRP-24, **TCEQ, 2006**), would be a TBC for the site when determining surface water quality criteria for contaminants in surface water at the site where a standard is not contained in 30 TAC 307.

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

Examples of other information that might call into question the protectiveness of the remedy include potential future land use changes in the vicinity of the site or other expected changes in site conditions or exposure pathways; no such information has come to light as part of this third five-year review for the site.

7.4 Summary of the Technical Assessment

The technical assessment, based on the site interviews, site inspection, technical evaluation, and data review indicates that the remedial actions selected for the Sikes Disposal Pits Superfund Site generally appear to have been implemented and are functioning as intended by the ROD. The assumptions used at the time of remedy selection are still valid. There are no early indicators related to the remedy that would suggest potential remedy problems at the site. No changes in contaminant toxicity or other contaminant characteristics were identified that affect the cleanup levels originally established for the site, or affect the protectiveness of the remedy. No new laws or regulations have been promulgated or enacted that would call into question the effectiveness of the remedy to protect human health and the environment. No other information such as a potential future land use change in the vicinity of the site or other changes in site conditions have been identified as part of this five-year review that might call into question the protectiveness of the selected remedy. However, as discussed below, the discharge of Site ground water to the Love Marina ponds has been identified as a new exposure pathway.

As determined during the site inspection (**Section 6.6**), locks are missing or damaged on the access gates at monitor wells GW-7 and GW-27. To maintain the security of the monitor wells, it is recommended that the access gates, at a minimum, have locks on them to prevent unauthorized access to the wells. It is recommended that locks be installed on the access gates to these two wells (see **Section 9.0**).

As determined during the site inspection (**Section 6.6**), four drums containing purge water are present at the site. It is recommended that the purge water stored in these drums be characterized and disposed of in accordance with the O&M Plan (see **Section 9.0**).

As determined during the site inspection (**Section 6.6**), two wells are present at the site that are not currently part of the O&M monitoring program. The markings on these wells identify them as SI-116 and INT-116. It is recommended that these wells be evaluated for use in the site O&M program. If the wells are not to be utilized for O&M monitoring of the site, then the wells should be abandoned (see **Section 9.0**).

As indicated in **Section 7.1**, a new exposure pathway has been identified for the site. The ROD identified the potential for contaminated ground water to migrate into surface water bodies at the site. The EPA and TCEQ have concurred that ground water at the site discharges into the two ponds located at the Love Marina, at the southwest corner of the site. The ROD did specify as a remedial objective the need to prevent human exposure to contaminated surface water at the site. However, exposure of aquatic life to contaminated surface water was not specifically specified as an exposure pathway in the ROD. The data review (**Section 6.4**) determined that chromium exceeded the surface water quality standard for the protection of aquatic life in a duplicate sample collected from the west pond. Chromium did not exceed the standard in the normal sample, and chromium was not detected in the upgradient monitor wells during the same sampling event. Additional data collection and evaluation will be required to determine the chromium concentration in the ponds (see **Section 9.0**).

The ARARs review (**Section 7.2**) determined that the MCLs for several site ground water contaminants are lower than the human health criteria specified in the ROD. In accordance with the ROD, the lower of the MCL or ROD-specified human health criteria should be utilized for purposes of determining when the ground water at the site has achieved the remedial objective of protection of human health and use of the ground water onsite can be allowed (see **Section 9.0**).

The data review determined that contaminant concentrations have increased in several site monitor wells in the shallow aquifer. The benzene and vinyl chloride concentrations in monitor well GW-28 increased significantly between July 2005 and May 2006. The TCE concentration in GW-28 has been increasing since July 2004. Monitor well GW-30 has exhibited variable vinyl chloride concentration trends since monitoring began in 1999. In the remaining wells, contaminant concentrations are not detected, have

decreased, or are stabilized. Currently, one or more metals contaminants exceed the ground water criteria in the shallow aquifer at monitor wells GW-15, GW-18, GW-23, GW-28, and GW-34. One or more VOCs exceed the ground water criteria in the shallow aquifer at monitor wells GW-28 and GW-30 only. No metals or VOCs exceed the ground water criteria in the deeper aquifer.

8.0 Institutional Controls

Institutional Controls (ICs) are generally defined as non-engineered instruments such as administrative and legal tools that do not involve construction or physically changing the site and that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use (**EPA, 2005**). ICs can be used for many reasons including restriction of site use, modifying behavior, and providing information to people (**EPA, 2000**). ICs may include deed notices, easements, covenants, restrictions, or other conditions on deeds, and/or ground water and/or land use restriction documents (**EPA, 2001a**). The following paragraphs describe the ICs implemented at the site, the potential affect of future land use plans on ICs, and any plans for changes to site contamination status.

8.1 Types of Institutional Controls in Place at the Site

Three deed notices describing the site hazards are in place for the site. The properties of Mr. Richard O. Sikes, Jim Love, and M.W. McCledon have deed notices filed at the Harris County Clerk's office. However, these deed notices do not cover the ground water areas of the site in its entirety. The properties of Mr. William N. Parker and Larry Anderson are inside the site boundary and no deed notices for these two properties were found in the Harris Clerk's office real property records.

Copies of the notices for the Sikes, Love, and McCledon properties are included as **Attachment 6** to this five-year review report. The notices describe that the shallow ground water beneath these properties contains chemicals of concern that exceed the TCEQ approved PCLs. The notices further state that the use of the shallow ground water for any purpose is prohibited unless otherwise approved by the TCEQ in writing or until contaminants no longer exceed their respective PCLs.

Although not of themselves considered institutional controls; the monitor wells at the site are secured by perimeter fences; entrance to the monitor wells is restricted by a locked gate; and, warning signs are visible on each of the monitor wells.

8.2 Effect of Future Land Use Plans on Institutional Controls

No future land uses have been established or are anticipated for the site that would require an adjustment to the ICs currently put into place.

8.3 Plans for Changes to Site Contamination Status

Monitored natural attenuation is the current remediation strategy at the site. No changes to the status of the contamination at the site are anticipated.

9.0 Issues

The ground water sampling and O&M activities are ongoing at the site. Based on the data review, site inspection, interviews, and technology assessment, it appears the remedy has been implemented as planned and is functioning as intended by the decision document in the short-term. To ensure continued protectiveness, eight issues are identified in the third five-year review for this site, as described in the following paragraphs. The issues are also summarized in **Table 9**. These issues due not currently affect the protectiveness of the remedy, although they need to be addressed to ensure continued protectiveness.

1. **Locks are not present on the access gates to monitor wells GW-7 and GW-27.** Monitor well GW-7 is located next to the railroad bridge over the road that is located along the eastern and northern site boundary. The second five-year review also noted the lack of a lock on the access gate at well GW-7. Monitor well GW-27 is located in the northern portion of the site, approximately 200 feet south of the road located along the eastern and northern site boundary. Access to both monitor wells is not restricted from the road. The lack of locked gates at these two wells means that access by the public or trespassers to the wells is not prevented. Unrestricted access increases the potential for the wells to be damaged or compromised. At a minimum, the gates on the outer security fences should be locked to prevent unauthorized access to the monitor wells. All other site wells are secured by locks on the security fences.

2. **Drums containing purge water are currently stored inside the security fence at monitor wells GW-28/GW-29 and at monitor well GW-35.** The drums at GW-28/GW-29 are rusted. The drum at GW-35 appears to be in good condition. The O&M Plan stipulates that all purge water will be characterized and properly disposed.

3. **There were two monitor wells (SI-116 and INT-116) located during the site inspection that are not shown on site maps. These wells are not a part of the current monitoring program.** There is no information available concerning these two wells in the documentation reviewed as part of this five-year review. At the surface, the wells appear to be in good condition. If there are no plans to use these two wells as part of the ongoing monitoring program, they should be abandoned.

4. **Since the ROD was signed, MCLs have been established for several site contaminants that are lower than the human health criteria presented in the ROD.** The ROD identified human health criteria or drinking water standards as the remedial objective for the contaminated ground water. The MCLs established for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-dichloroethane, ethylbenzene, toluene, 1,1,2-trichloroethane, trichloroethene, and vinyl chloride are below the human health criteria defined in the ROD.

5. **The concentrations of several contaminants have recently increased in the shallow aquifer in monitor well GW-28 (benzene, trichloroethene, and vinyl chloride), located near and upgradient of the ponds at the Love Marina.** The increases are about an order of magnitude or less, and have occurred over the past few years. This monitor well is located along the downgradient (southern) boundary of the site. The increasing contaminant concentrations could be the result of several individual factors or a combination of factors. If increasing contaminant concentrations are verified, they could indicate migration in the ground water. If the contamination is migrating, it could eventually discharge into the ponds at the Love Marina.

6. **In one of two duplicate surface water samples collected from the west pond in the May 2006 sampling event, the chromium concentration exceeded the Texas surface water quality standard for the protection of aquatic life.** In the second duplicate surface water sample, chromium was detected, but was below the standard. The Texas surface water quality standards are specified as an ARAR for the site in the ROD. Chromium was not detected in ground water samples collected in May 2006 from upgradient monitor wells GW-15 and GW-30.

7. **Access to the site on the northern entrance is restricted by a lock maintained by the property owner**. Currently, the TCEQ does not have keys to the lock at the northern entrance. During sampling

events and site visits, sampling personnel must notify the property owner a day or two prior to the sampling event to gain access to the site through the northern gate.

8. **Deed notices describing the site hazards are not in place for all properties within the boundary of the site.** Deed notices are on file at the Harris County Clerk's office for the properties owned by Mr. Richard O. Sikes, Mr. Jim Love, and Mr. M.W. McCledon. However, these three deed notices do not cover the ground water area of the site in its entirety. The properties of Mr. William N. Parker and Larry Anderson are inside the site boundary and no deed notices for these two properties were found in the Harris Clerk's office real property records.

10.0 Recommendations and Follow-up Actions

As described in the previous section, eight issues were identified during the third five-year review for this site. To address these issues, the following recommendations and follow-up actions have been defined. These recommendations and follow-up actions are also provided in **Table 9**.

1. **Place locks on the access gates at monitor wells GW-7 and GW-27**. The access gates should be secured to prevent unauthorized access to wells. The fences and gates are required to restrict access and prevent damage to or tampering with the monitor wells.

2. **Dispose the purge water contained in the drums at monitor wells GW-28/GW-29 and GW-35 in accordance with the O&M Plan.** The drums at GW-28/GW-29 are rusting and should be replaced. All purge water generated as part of sampling activities should be disposed during the following sampling event, and the O&M Plan should be modified to incorporate specific criteria for regular disposal of purge water generated during the ground water sampling activities. TCEQ has indicated the purge water presently onsite will be characterized and disposed during the next semi-annual sampling event.

3. **Evaluate the two wells (SI-116 and INT-116) located on the road along the eastern site perimeter approximately 100 yards north of the intersection with US Highway 90.** TCEQ has indicated they plan to sample and analyze groundwater from monitor wells SI-116 and INT-116 during the next semi-annual sampling event, and make a determination based on the results. These wells should be either incorporated into the ground water monitoring program and the O&M Plan, as appropriate, or properly plugged and abandoned.

4. **Revise the ground water criteria to the lower value of the ROD-specified human health criteria or the current MCL.** Since the ROD was signed in September 1986, MCLs have been promulgated for several Site contaminants that are lower than the human health criteria defined in the ROD. To ensure the protection of human health through the ground water pathway, the TCEQ has indicated that remedial objectives will reflect the more conservative MCLs in lieu of the human health criteria, consistent with the ARARs presented in the ROD. The current and revised criteria are described in **Table 2**. Future five-year reviews must re-evaluate the MCLs relative to the human health criteria and adjust the values as appropriate to maintain the protectiveness of the remedy.

5. **Continue to monitor the ground water in accordance with the O&M Plan and continue to monitor the surface water in the two ponds located at the Love Marina.** If contaminant concentrations continue to increase in the shallow ground water, it will be necessary to evaluate measures to address the contamination and potential contaminant migration to the ponds and offsite receptors in ground water. In addition, contaminant concentrations in the two ponds should continue to be monitored to verify that concentrations in the ponds meet the most current surface water quality standards. The PCLs established by the TCEQ will be used to evaluate the contaminants where a surface water quality standard does not exist.

6. **Continue monitoring the surface water to verify the chromium concentration in the west pond.** The TCEQ plans to increase the frequency of dedicated sampling events for the monitoring of contaminant levels in the ponds. If the exceedance of the aquatic life surface water quality standard for chromium is repeated, the source of the chromium contamination in the west pond should be evaluated. Additional action may be required to address the chromium exceedance in surface water to protect aquatic life.

7. **Make arrangements for more convenient access through the northern entrance to the site for sampling events.** The TCEQ has indicated they plan to work out an agreement with the property owner to have access and a separate lock to the northern entrance of the site.

8. **Evaluate the need for deed notices to be put into place describing site hazards for the properties of Mr. William N. Parker and Mr. Larry Anderson.** The TCEQ has indicated they plan to ensure that all affected properties have deed notices in place describing the site hazards.

11.0 Protectiveness Statement

The remedy implemented for the Sikes Disposal Pits Superfund Site is considered protective of human health and the environment in the short-term. Contaminated soils and sludges were incinerated onsite, and the resultant ash used as backfill onsite in the areas of excavation. The only restrictions placed on the site are that the use of the upper and lower aquifers onsite is banned until contaminant concentrations have decreased to below the human health criteria or MCLs as listed in **Table 2** of this Third Five-Year Review Report. Natural attenuation is still an appropriate approach to address the ground water contamination onsite. The ground water continues to be monitored to ensure that contaminated ground water is not migrating offsite and that contaminant concentrations are attenuating. Continued O&M will ensure that the selected remedy continues to be protective.

Because the completed remedial action implemented at the Sikes Disposal Pits Superfund Site continues to be protective for the short-term, the overall remedy for the site continues to be protective of human health and the environment for the short-term. The selected remedy will continue to be protective if the recommendations and follow-up actions identified in this five-year review are addressed.

12.0 Next Review

The next five-year review, the fourth for the site, should be completed during or before September 2011. This review should include an evaluation of the ground water and surface water monitoring data to ensure that contaminant concentrations in ground water are attenuating and that contaminants are not migrating into surface water.

Table 1
Chronology of Site Events
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Date	Event
1955 - 1968	Site used as open dump.
1981	U.S. Environmental Protection Agency (EPA) and Texas Water Development Board (TWDB) begin site assessments.
October 1981	Site proposed to EPA's National Priorities List (NPL).
June 1982	EPA and TWDB execute initial cooperative agreement making the TWDB the lead agency for the project.
May 1983 - June 1986	Remedial Investigation/Feasibility Study (RI/FS) performed.
September 1983	Site finalized on the NPL.
September 18, 1986	Record of Decision (ROD) signed.
December 1988	Remedial Design (RD) completed.
April 1990	Remedial Action contract awarded to IT-Davy.
October 1990	Notice to proceed issued for RA Phase A.
January 1992	RA Phase A completed, and Phase B begins.
April 1992	Trial Burn of the incinerator conducted. State issues interim operating conditions to allow remediation to begin.
August 1992	Trial Burn Report is approved, and production operating conditions are issued.
May 1994	Excavation of contaminated soils is completed.
June 1994	Incineration completed.
August 1994	Incineration demobilization is completed.
April 1995	Final Inspection conducted.
December 1995	Final Completion Certificate issued.
May 1997	Final Closeout Report issued by EPA.
April 1998	First five-year review completed by EPA.
September 2001	Second five-year review completed by EPA.
October 1995 - present	O&M ongoing at the site (semi-annual ground water monitoring and well maintenance).

Table 2
MCLs and 10^{-5} Human Health Criteria
for Ground Water Contaminants*
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Contaminant	10^{-5} Human Health Criteria (µg/L)	Current MCL (µg/L)	Year Current MCL was Promulgated
Beryllium	**0.037**	4	1994
Cadmium	10	**5**	1992
Chromium (total)	**50**	100	1992
Lead	50	**15**	1991
Mercury	**0.14**	2	1992
Nickel	**13.4**	100	
Thallium	13	**2**	1994
Methyl methacrylate[1]	**34000**		
Styrene[2]	**100**	**100**	1992
Benzene	6.6	**5**	1989
Chlorobenzene	488	**100**	1989
Chloroform	**1.9**	80**	2002
1,2-Dichloroethane	9.4	**5**	1989
Trans-1,2-dichloropropene	**87**		
Ethylbenzene	1,400	**700**	1992
1,1,2,2-Tetrachloroethane	**1.7**		
Toluene	14,300	**1,000**	1992
1,1,2-Trichloroethane	6	**5**	1994
Trichloroethene	23	**5**	1989
Vinyl chloride	20	**2**	1989

Notes:
The ground water criteria that current applies (the lower of the human health criteria or the MCL) is is bolded and shaded in gray.
µg/L - micrograms per liter
ROD - Record of Decision
MCL - Maximum Contaminant Level
* - Only contaminants that are monitored for are listed.
** - MCL for chloroform is expressed as total trihalomethanes, which also includes bromodichloromethane, bromodichloromethane, and bromoform.
[1] Methyl methacrylate was included in the O&M Plan on June 2001, but was not initially listed in the ROD.
[2] Styrene was included in the O&M Plan on December 2000, but was not initially listed in the ROD.

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Table 3
Actions Taken Since Last Five-Year Review
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Deficiencies from Previous Review	Recommendations/ Follow-up Actions	Party Responsible	Milestone Date	Action Taken	Date of Action
Monitor well GW-25 does not have a security fence around it. This well is located next to a public road and is the most accessible well.	A security fence should be erected around monitor well GW-25 to protect it from potential vandalism.	TCEQ	N/A	A security fence was constructed at monitor well GW-25.	January 2002
There are no locks on the gates to wells GW-7 and GW-23.	The missing locks on the security gates at wells GW-7 and GW-23 should be replaced.	TCEQ	N/A	A lock was installed on the security fence gate for well GW-23. Well GW-07 is still missing a lock.	Unknown
The first five-year review recommended that the ponds south of wells GW-28 and GW-30 should be studied to determine if a threat exists if the contaminant concentrations did not decrease to below health based levels within the next 2 years. Concentrations of contaminants were still above the health based levels in these two wells at the time of the second five-year review.	Because the contaminant concentrations have remained above the human health criteria, this recommendation should be implemented.	TCEQ	N/A	The ponds have been sampled.	2006
	As part of this study, water level gauging of the ponds should be done to determine ground water flow direction in the area near these ponds, and this water level gauging should be incorporated into the semi-annual ground water monitoring program.	TCEQ	N/A	Water level gauging in site monitor wells ceased as specified in the O&M Plan 7th Revision, February 2003. The EPA and TCEQ have concurred that ground water in the shallow zone flows towards the ponds during most of the year.	February 2003
	Metals concentration values obtained from the current ground water sampling event should be compared to results obtained from previous sampling events to determine if there is any pronounced change.	TCEQ	N/A	Comparison of metals and VOC concentration values are presented in annual monitoring reports. Concentrations appear to be stable or decreasing.	2001

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Table 4
Metals Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)						
		Beryllium	Cadmium	Chromium, Total	Lead	Mercury	Nickel	Thallium
		ROD Specified Human Health Criteria or MCL**						
		0.037	5**	50	15**	0.14	13.4	2**
GW-15	02/01/99	< 2.2	< 2.2	< 5.6	15.3	< 1.1	< 5.60	< 7.2
	06/01/99	< 2.2	< 2.2	< 0.1	22	< 1.1	< 10.00	< 10
	02/28/00	53.8	10.6	13.8	56.7	< 0.2 UJ	51.70	3.8
sampled	07/06/00	< 4 U	< 10 U	< 0.25 U	< 50 U	< 1 U	< 10.00 U	< 2 UJ
semi-	12/19/00	33	< 7 U	< 0.1 U	132	< 0.1 U	140.00	< 10 U
annually	06/26/01	2 J	< 5 U	2 J	7 J	< 2 U	19.00 J	6 J
	01/30/02	9.23	1.1	19.2	115	0.162 J	20.90	0.41
	06/26/02	4.82	1.19	13.7	93.4	< 0.14 U	12.60	0.198 J
	04/09/03	4.01	2.2	6.12	40.7	< 0.13 U	5.23	0.21 J
	07/01/03	1.5	0.713	3.77	24.6	< 0.13 U	7.18	0.131 J
	02/18/04	3.56	0.652	6.82	49.2	< 0.13 U	5.78	< 0.13 U
	07/14/04	3.6	2.1	1.8 J	17.5 J	< 0.04 U	3.50	< 0.9 U
	07/14/04*	3.6	1.4	2.7 J	28.7 J	< 0.03 U	3.70	< 0.9 U
	02/22/05	5.03	0.639 J	4.93 J	14.6	0.097 J	3.27 J	< 0.9 U
	07/07/05	3.12	< 7.96 UJ	< 2.62 UJ	12.2	< 0.042 U	4.41 J	< 0.573 UJ
	05/25/06	4.02	0.611 J	< 0.50 U	56.2	< 0.10 U	9.34	0.407 J
GW-18	02/01/99	4.7	< 2.2	7.3	47.8	< 1.1	22.70	< 7.2
	06/01/99	< 2.2	< 2.2	< 0.1	< 10	< 1	23.00	< 10
	02/28/00	F	F	2	F	< 0.2 UJ	2.10	F
sampled	02/28/00*	F	F	1.8	F	< 0.2 UJ	21.10	F
semi-	07/06/00	< 4 U	< 10 U	< 0.25 U	< 50 U	< 1 U	< 10.00 U	< 2 UJ
annually	12/19/00	1 J	< 7 U	< 0.1 U	< 15 U	< 0.1 U	122.00	< 10 U
	12/19/00*	1 J	< 7 U	7 J	18	< 0.1 U	130.00	< 10 U
	06/26/01	3 J	< 5 U	10 J	24	< 2 U	22.00 J	7 J
	01/30/02	9.09	0.5	19.1	63.3	< 0.14 U	46.90	0.46
	06/25/02	2.6	0.693	22.2	21.8	< 0.14 U	36.50	0.265 J
	04/09/03	0.943 J	0.178 J	7.62	24.4	< 0.13 U	21.70	0.079 J
	07/01/03	0.836 J	< 0.07 J	6.18	13.2	< 0.13 U	21.10	0.117 J
	07/01/03	0.825 J	0.077 J	5.98	14.1	< 0.13 U	20.80	0.076 J
	02/18/04	1.62	0.152 J	13.8	22.9	< 0.13 U	27.20	0.176 J
	02/18/04*	1.6	0.162 J	13	21.9	< 0.13 U	26.30	0.174 J
	07/14/04	0.9 J	< 0.6 U	1.3 J	6.6 J	< 0.022 U	19.00	< 0.9 J
	02/22/05	0.982 J	< 0.15 U	2.2 J	7.47	< 0.042 U	14.20 J	< 0.4 U
	07/07/05	< 0.711 UJ	< 0.15 U	2.15 J	3.55 J	< 0.042 U	15.00	< 0.4 U
	05/25/06	0.898 J	< 0.15 U	< 0.5 U	8.05	0.20 U	19.4	< 0.4 U

Table 4
Metals Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)													
		Beryllium		Cadmium		Chromium, Total		Lead		Mercury		Nickel		Thallium	
		ROD Specified Human Health Criteria or MCL**													
		0.037		5**		50		15**		0.14		13.4		2**	
GW-19	02/01/99	< 2.2		< 2.2		< 5.6		< 5.6		< 1.1		< 5.60		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.1		< 10		< 1		< 10.00		< 10	
	02/28/00	ND		F		ND		ND		< 0.2	UJ	F		ND	
sampled	07/07/00	< 4	U	< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
semi-	12/19/00	< 5	U	< 7	U	7	J	< 15	U	< 0.1	U	**66.00**		< 10	U
annually	06/26/01	**2**	J	< 5	U	7	J	< 10	U	< 2	U	**18.00**	J	**10**	J
	06/26/01*	**2**	J	< 5	U	7	J	8	J	**0.6**	J	13.00	J	**7**	J
	01/30/02	**0.2**		0.1		1.6		2.61		< 0.14	U	2.90		0.03	
	06/26/02	**0.195**	J	0.144	J	4.04		4.56		< 0.14	U	3.53		0.064	J
	04/09/03	**0.316**	J	0.418	J	4.96		6.72		0.133	J	3.53		0.061	J
	07/01/03	**0.216**	J	0.148	J	3.96		3.04		< 0.13	U	2.72		0.085	J
	02/17/04	**0.363**	J	0.13	J	4.39		3.61		< 0.13	U	3.66		< 0.13	U
	07/13/04	< 0.6	U	< 0.6	U	< 1	U	< 1.7	UJ	< 0.034	U	2.20		< 0.9	U
	02/23/05	< 0.3	U	< 0.15	U	0.657	J	1.68	J	< 0.042	U	0.56	J	< 0.4	U
	07/07/05	< 0.3	U	< 0.15	U	< 1.61	UJ	< 0.949	UJ	< 0.42	U	< 1.49	UJ	< 0.4	U
	05/26/06	< 0.3	U	0.164	J	2.21	J	10.1		< 0.10	U	2.58	J	< 0.4	U
GW-23	02/01/99	< 2.2		< 2.2		< 5.6		12.2		< 1.1	RU	< 5.60		**8.8**	
	02/01/99*	< 2.2		< 2.2		< 5.6		13.3		< 1.1		< 5.60		< 7.2	
sampled	06/01/99	< 2.2		< 2.2		< 0.1		< 10		< 1		**36.00**		< 10	
during	02/28/00	R		F		1.5		4.6		< 0.2	UJ	1.90		**2.8**	
5-year	07/07/00	< 4		< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
review	12/19/00	**2**	J	< 7	U	< 0.1	U	**25**		< 0.1	U	**66.00**		< 10	U
	06/25/01	**2**	J	< 5	U	3	J	**16**		**0.6**	J	**16.00**	J	**7**	J
	01/29/02	**0.2**		< 0.1		1		7.57		< 0.14	U	2.40		0.03	J
	06/26/02	**0.106**	J	< 0.03	U	0.752	J	1.74		< 0.14	U	4.51		0.03	J
	05/25/06	**0.731**	J	0.439	J	6.38		**20.9**		< 0.10	U	7.5		0.54	J
GW-25	02/01/99	< 2.2		< 2.2		< 5.6		< 5.6		< 1.1		< 5.60		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.1		< 10		< 1		< 10.00		< 10	
	02/28/00	F		F		F		2.8		< 0.2	UJ	1.40		F	
sampled	07/06/00	< 4	U	< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
semi-	12/19/00	< 5	U	< 7	U	5	J	< 15	U	< 0.1	U	**21.00**		< 10	U
annually	06/25/01	**4**	J	< 5	J	10	J	**25**		**1.1**	J	**684.00**		**15**	J
	01/30/02	**0.12**		< 0.1	U	1.9		1.11		< 0.14	U	5.30		0.07	
	06/26/02	**0.107**	J	0.045	J	10.2		2.21		< 0.14	U	8.31		< 0.029	U
	04/09/03	< 0.03		< 0.071	J	1.62	J	0.78	J	< 0.13	U	1.56	J	< 0.036	U
	07/02/03	**0.049**	J	< 0.07	U	1.65	J	< 0.62	U	< 0.13	U	1.80	J	< 0.036	U
	02/18/04	**0.085**	J	< 0.1	U	3.01		1.38		< 0.13	U	2.56		< 0.13	U
	07/13/04	< 0.6	U	< 0.6	U	3.3	J	< 1.7	UJ	< 0.064	U	3.50		< 0.9	U
	02/23/05	< 0.3	U	< 0.15	U	6.36		0.578	J	< 0.042	U	3.10	J	< 0.4	U
	07/07/05	< 0.3	U	< 0.15	U	3.17	J	< 0.425	UJ	< 0.042	U	< 1.28	UJ	< 0.4	U
	05/25/06	< 0.3	U	< 0.15	U	< 0.5	U	2.95	J	< 0.10	U	1.75	J	< 0.4	U

Table 4
Metals Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)													
		Beryllium		Cadmium		Chromium, Total		Lead		Mercury		Nickel		Thallium	
		ROD Specified Human Health Criteria or MCL**													
		0.037		5**		50		15**		0.14		13.4		2**	
GW-27	02/01/99	< 2.2		< 2.2		< 5.6		4.6		< 1.1		< 5.60		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.28		< 11		< 1		< 56.00		< 56	
sampled	02/28/00	F		F		10.1		11.2		**0.44**	J	2.90		F	
during	07/07/00	< 4		< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
5-year	07/07/00*	< 4		< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
review	12/19/00	< 5		< 7	U	14		< 15	U	0.1		**97.00**		< 10	U
	06/25/01	**2**	J	< 5	U	29	J	9	J	< 2	U	**21.00**	J	**8**	J
	01/30/02	**0.22**		< 0.1	U	3.3		2.54		< 0.14	U	2.70		0.05	
	06/26/02	0.033	J	< 0.03	U	2.46		0.942	J	< 0.14	U	1.86	J	0.053	J
	05/26/06	< 0.3	U	< 0.15	U	< 0.5	U	3.16	J	< 0.10	U	2.28	J	< 0.4	U
GW-28	02/01/99	< 2.2		< 2.2		< 5.6		8.9		< 1.1		7.70		< 7.2	
	02/01/99*	< 2.2		< 2.2		< 5.6		8.6		< 1.1		7.90		< 7.2	
	06/01/99	**2.2**		< 2.2		< 0.1		< 10		< 1		10.00		< 10	
sampled	02/28/00	**3.1**	R	F	R	5.2		F		< 0.2	UJ	**25.50**		**12.4**	
semi-	07/06/00	< 4	U	< 10	U	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	U
annually	12/19/00	**4**	J	< 7	J	11		< 15	U	< 0.1	U	**82.00**		< 10	U
	06/26/01	**4**		< 5		12	J	10		< 2	U	**40.00**		**7**	J
	01/29/02	**0.75**		< 0.1		3.2		1.23		< 0.14	U	8.60		0.03	J
	06/25/02	**1.49**		0.153		6.39		1.8		< 0.14	U	12.40		< 0.029	U
	06/25/02*	**1.4**		0.122		6.12		1.67		< 0.14	U	11.90		< 0.029	U
	04/09/03	**0.94**	J	0.09	J	5.52		1.47		< 0.13	U	3.64		0.046	J
	04/09/03*	**0.873**	J	< 0.07	J	4.8		1.27		< 0.13	U	3.17		0.041	J
	07/01/03	**0.947**	J	0.07	J	5.34		2.96		< 0.13	U	6.97		0.094	J
	02/18/04	**0.842**	J	0.105	J	3.55		2.62		< 0.13	U	4.17		< 0.13	U
	07/14/04	< 0.6	U	< 0.6	U	5		< 1.7	UJ	< 0.0483	U	4.90		< 0.9	U
	02/22/05	< 0.6	U	< 0.3	U	4.47	J	0.781	J	< 0.042	U	5.24	J	< 0.8	U
	07/07/05	< 0.3	U	< 0.15	U	< 2.57	UJ	< 1.08	UJ	< 0.042	U	3.94	UJ	< 0.4	U
	05/26/06	**0.581**	J	< 0.15	U	< 0.5	U	1.41	J	< 0.10	U	5.39		< 0.4	U
	05/26/06*	**0.564**	J	< 0.15	U	< 0.5	U	1.36	J	< 0.10	U	4.57	J	< 0.4	U
GW-30	02/01/99	< 2.2		< 2.2		< 5.6		< 5.6		< 1.1		6.20		< 7.2	
	06/01/99	< 2.2		< 2		< 0.1		< 10		< 1		< 10.00		< 10	
	02/28/00	F		F		1.1		F		< 0.2	UJ	4.60		F	
sampled	07/06/00	< 4	U	**21**		< 0.25	U	< 50	U	< 1	U	< 10.00	J	< 2	UJ
semi-	12/19/00	**2**	J	< 7	U	< 0.1	U	< 15	U	< 0.1	U	**118.00**		< 10	U
annually	06/26/01	**2**	J	< 5	U	9	J	6	J	**0.6**	J	**26.00**		7	J
	01/29/02	**0.66**		0.1		3.3		2.08		< 0.14	U	8.00		0.07	
	06/25/02	**0.135**	J	< 0.03	U	1.8	J	0.631	J	< 0.14	U	6.83		0.045	J
	04/09/03	**1.74**		0.111	J	7.75		8.11		**0.331**	J	6.65		0.103	J
	07/02/03	**0.255**	J	< 0.07	U	4.28		2.82		**0.285**	J	6.96		0.081	J
	02/18/04	**0.142**	J	< 0.1	U	1.81	J	1.38		< 0.13	U	3.93		0.13	U
	07/13/04	< 0.6	U	< 0.6	U	< 1	U	< 1.7	UJ	< 0.0372	U	6.00		< 0.9	U
	02/23/05	< 0.3	U	< 0.15	U	0.764	J	0.415	J	< 0.042	U	3.79	J	< 0.4	U
	02/23/05*	< 0.6	U	< 0.3	U	1.14	J	0.467	J	< 0.042	U	7.07	J	< 0.8	U
	07/07/05	< 0.3	U	< 0.15	U	< 0.85	UJ	< 0.445	UJ	< 0.042	U	< 4.19	UJ	< 0.4	U
	07/07/05*	< 0.3	U	< 0.15	U	< 0.813	UJ	< 0.47	UJ	< 0.042	U	< 3.94	UJ	< 0.4	U
	05/25/06	< 0.3	U	0.171	J	< 0.5	U	6.54		< 0.10	U	5.82		0.84	J

Table 4
Metals Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)															
		Beryllium		Cadmium		Chromium, Total		Lead		Mercury		Nickel		Thallium	
		ROD Specified Human Health Criteria or MCL**													
		0.037		5**		50		15**		0.14		13.4		2**	
GW-32	02/01/99	< 2.2		< 2.2		< 5.6		< 5.6		< 1.1		< 5.60		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.1		< 10		< 1		< 10.00		< 10	
sampled	06/01/99*	< 2.2		< 2.2		< 0.1		< 10		< 1		< 10.00		< 10	
during	02/28/00	F		F		1.3		F		< 0.2	UJ	2.40		F	
5-year	07/06/00	< 4	U	< 10F	J	< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
review	12/19/00	< 5	U	< 7	U	< 0.1	U	< 15	U	0.1	U	**65.00**		< 10	U
	06/26/01	**2**	**J**	5	U	2	J	4	J	**5.6**		**21.00**	**J**	**7**	**J**
	01/29/02	**0.52**		0.5	U	6.2		0.65		< 0.014	U	**13.50**		0.23	
	01/29/02*	**1.09**		0.6		6.4		1.2		**0.166**	**J**	**14.80**		0.36	
	06/25/02	**0.329**	**J**	0.387	J	3.14		0.484	J	< 0.14	U	6.34		0.169	J
	05/26/06	< 0.3	U	< 0.15	U	0.779	J	0.572	J	< 0.10	U	4.88	J	< 0.4	U
GW-34	02/01/99	< 2.2		< 2.2		< 5.6		**75.3**		< 1.1		**13.50**		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.1		**29**		< 1		< 10.00		< 10	
sampled	06/01/19*	< 2.2		< 2.2		< 0.1		**25**		< 1		**22.00**		< 10	
during	02/28/00	R		F		2.4		**16.3**		< 0.2	UJ	8.50		F	
5-year	07/06/00	< 4	U	< 10		< 0.25	U	< 50	U	< 1	U	< 10.00	U	< 2	UJ
review	12/19/00	**1**	**J**	< 7	J	22		**103**		< 0.1	U	**341.00**		< 10	U
	06/26/01	**2**	**J**	5	J	11	J	24		**1.7**	**J**	**25.00**		**11**	**J**
	01/29/02	**0.05**		0.5		1.4		4.26		< 0.14	U	**22.00**		0.03	
	06/25/02	**0.31**	**J**	0.03	J	1.42	J	2.18		< 0.14		12.20		< 0.029	U
	05/26/06	< 0.3	U	< 0.15	U	< 0.5	U	**17.4**		< 0.10	U	4.16	J	< 0.4	U
GW-35	02/01/99	< 2.2		< 2.2		< 5.6		4.7		< 1.1		< 5.60		< 7.2	
	06/01/99	< 2.2		< 2.2		< 0.1		< 10		< 1		< 10.00		< 10	
sampled	02/28/00	F		F		1.6		8.4		< 0.2	UJ	1.20		F	
during	07/07/00	< 4	U	< 10	U	< 0.25	U	< 50	U	< 1	U	10.00	U	< 2	UJ
5-year	12/19/00	< 5	U	< 7	U	< 0.1	U	< 15	U	< 0.1	U	**36.00**		< 10	U
review	06/25/01	**2**	**J**	< 5	U	4	J	6	J	**3.9**		10.00	J	**6**	**J**
	01/30/02	**0.09**		< 0.1	U	1.6		2.66		< 0.14	U	3.70		0.02	J
	06/26/02	**0.79**	**J**	< 0.03	U	1.45	J	2.17		< 0.14	U	1.76	J	< 0.029	U
	05/26/06	< 0.3	U	0.15	U	1.34	J	4.1	J	< 0.10	U	1.66	J	< 0.4	U

Notes:
Blue shading and **bold** - Indicates the analyte exceeded the Human Health Criteria or MCL.
* - Indicates the sample is a duplicate of the preceding sample.
** - Indicates use of MCL in place of the Human Health Criteria from the ROD
U - The analyte was analyzed for, but not detected.
J - The analyte was positively identified, the quantitation is an estimate.
UJ - The analyte was analyzed for but was not detected above the reported sample quantitation limit. The associated value is an estimated quantitation limit.
F - The analyte was positively identified but the associated value is below the reporting limit.
R - The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
ND - Not detected.
< - The analyte was not detected at the reporting limit indicated.
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
ROD - Record of Decision

Table 5
Metals Detections in Ground Water in the Deeper Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)																					
		Beryllium			Cadmium			Chromium, Total			Lead			Mercury			Nickel			Thallium			
		ROD Specified Human Health Criteria or MCL**																					
		0.037			5**			50			15**			0.14			13.4			2**			
GW-7	06/01/99	<	2.2		<	2.2		<	0.1		<	10		<	1		<	10.00		<	10		
sampled	07/07/00	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2	JU	
during	06/25/01		**2**	**J**	<	5	J		3	J		4	J		**1.7**	**J**		8.00	J		**9**	**J**	
5-year	06/25/02	<	0.022	U	<	0.03	U		0.945	J		0.156	J	<	0.14	U		0.26	J	<	0.029	U	
review	05/25/06	<	0.3	U		0.161	J		0.674	J		0.428	J	<	0.10	U		0.512	J	<	0.4	U	
GW-21	06/01/99	<	2.2		<	2.2		<	0.1		<	10		<	1		<	10.00		<	10		
	07/07/00	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2	JU	
sampled	06/25/01		**2**	**J**	<	5	U		2	J		3	J	<	2	U		9.00	J		**9**	**J**	
during	06/25/01*		**2**	**J**	<	5	U		8	J		5	J		**0.6**	**J**		**25.00**			**14**	**J**	
5-year	06/26/02	<	0.022	U	<	0.03	U		0.709	J	<	0.065	U	<	0.14	U		0.87	J	<	0.029	U	
review	06/26/02*	<	0.022	U	<	0.03	U		0.575	J	<	0.065	U	<	0.14	U		0.71	J	<	0.029	U	
	05/26/06	<	0.3	U	<	0.15	U		0.731	J		7.88		<	0.10	U		1.2	J	<	0.4	U	
GW-29	06/01/99	<	2.2		<	2.2		<	0.1		<	10		<	1		<	10.00		<	10		
	07/06/00	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2	JU	
	07/06/00*	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2	JU	
sampled	06/26/01		**3**	**J**	<	5	J		3	J		13		<	2	U		2.40			**8**		
semi-	06/25/02	<	0.022	U	<	0.03	U		0.969	J		0.344	J	<	0.14	U		0.92	J		0.048	J	
annually	04/09/03	<	0.03	U	<	0.07	U		0.882	J	<	0.62	U	<	0.13	U		0.71	J		0.108	J	
	07/01/03		**0.065**	**J**	<	0.07	J		0.958	J	<	0.62	U	<	0.13	U		0.61	J		0.184	J	
	02/18/04		0.066	U	<	0.1	U		0.664	J		0.289	J	<	0.13	U		0.56	J	<	0.13	U	
	07/14/04	<	0.6	U	<	0.6	U	<	1	U	<	1.7	UJ	<	0.022	U	<	1.30	U	<	0.9	U	
	02/22/05	<	0.3	U	<	0.15	U		0.5	U	<	0.2	U	<	0.042	U	<	0.30	U	<	0.4	U	
	07/07/05	<	0.3	U	<	0.15	U		0.5	U	<	0.2	U	<	0.042	U	<	0.30	U	<	0.4	U	
	05/26/06	<	0.3	U	<	0.15	U	<	0.5	U		0.649	J	<	0.10	U		0.705	J	<	0.4	U	

Table 5
Metals Detections in Ground Water in the Deeper Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well ID	Date	Analytes (all concentrations in µg/L)																					
		Beryllium			Cadmium			Chromium, Total			Lead			Mercury			Nickel			Thallium			
		ROD Specified Human Health Criteria or MCL**																					
		0.037			5**			50			15**			0.14			13.4			2**			
GW-31	06/01/99	<	2.2		<	2		<	0.1		<	10		<	1		<	10.00		<	10		
	07/06/00	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2		JU
	06/25/02	<	0.22	U	<	0.03	U		12.9			0.877	J	<	0.14	U		8.37		<	0.029		
sampled	04/09/03		0.034	J	<	0.07	J		1.31	J	<	0.62	U	<	0.13	U		0.86	J	<	0.036		U
semi-	07/01/03		**0.045**	**J**	<	0.07	J		0.844	J	<	0.62	U	<	0.13	U		0.66	J	<	0.036		U
annually	02/18/04	<	0.066	U	<	0.1	U		0.818	J		0.191	U		0.13	U		0.57	J	<	0.13		U
	07/14/04	<	0.6	U	<	0.6	U	<	1	U	<	1.7	UJ	<	0.0858	U	<	1.30	U	<	0.9		U
	02/22/05	<	0.3	U	<	0.15	U		1.27	J		0.728	J	<	0.042	U	<	0.30	U	<	0.4		U
	07/07/05	<	0.3	U	<	0.15	U	<	1.95	UJ	<	7.28	UJ	<	0.042		<	1.02	UJ	<	0.4		U
	05/25/06	<	0.3	U		0.484	J	<	0.5	U		**136**		<	0.10	U		0.371	J	<	0.4		U
GW-33	06/01/99	<	2.2		<	2.2		<	0.1		<	10		<	1		<	10.00		<	10		
sampled	07/06/00	<	4	U	<	10	U	<	0.25	U	<	50	U	<	1	U	<	10.00	U	<	2		UJ
during	06/26/01		**2**	**J**	<	5	U		10	J		7	J		**1.7**	**J**		**99.00**			8		J
5-year	06/25/02	<	0.022		<	0.03			0.881	J		0.148	J	<	0.14	U		1.25	J	<	0.029		U
review	05/26/06	<	0.3	U	<	0.15	U		0.552	J		0.853	J	<	0.1	U		1.53	J	<	0.4		U

Notes:
Blue shading and **bold** - Indicates the analyte exceeded the Human Health Criteria or MCL.
* - Indicates the sample is a duplicate of the preceding sample.
** - Indicates use of MCL in place of the Human Health Criteria from the ROD
U - The analyte was analyzed for, but not detected.
J - The analyte was positively identified, the quantitation is an estimate.
UJ - The analyte was analyzed for but was not detected above the reported sample quantitation limit. The associated value is an estimated quantitation limit.
F - The analyte was positively identified but the associated value is below the reporting limit.
R - The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
ND - Not detected.
< - The analyte was not detected at the reporting limit indicated.
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
ROD - Record of Decision

Table 6
VOC Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well No.	Sample Date	Analytes (concentrations in µg/L)													
		Benzene	Chlorobenzene	Chloroform	1,2-Dichloroethane	trans-1,3-Dichloropropene	Ethylbenzene	Methyl methacrylate*	1,1,2,2-Tetrachloroethane	Styrene*	Toluene	1,1,2-Trichloroethane	Trichloroethene (TCE)	Vinyl chloride
		ROD Specified Human Health Criteria or MCL**												
		5**	100**	1.9	5**	87	700**	34,000	1.7	100**	1000**	5**	5**	2**
GW-15	04/09/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	07/01/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	02/18/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	< 0.23 U	< 0.23 U	< 0.18 U	< 0.17 U
sampled	07/14/04	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
semi-	07/14/04*	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
annually	02/22/05	< 0.55 U	< 0.50 U	< 0.75 U	< 0.65 U	< 0.70 U	< 0.55 U	< 10.00 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.90 U	< 1.00 U
annually	07/07/05	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.65 U	< 0.55 U	< 10.00 U	< 0.60 U	< 0.50 U	< 0.50 U	< 0.70 U	< 0.50 U	< 0.55 U
	05/25/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U
GW-18	02/01/99	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	06/01/99	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	02/28/00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 2.00
sampled	02/28/00*	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 2.00
semi-	07/06/00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	< 5.00 U	NA	< 5.00 UJ	< 5.00 U	< 5.00 U	< 5.00 U
annually	12/19/00	< 5.00 U	< 5.00 U	< 1.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	< 1.00 UJ	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 UJ
	12/19/00*	< 5.00 U	< 5.00 U	< 1.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	< 1.00 UJ	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 UJ
	06/26/01	102	3.00 J	< 5.00 U	4.00 J	< 5.00 U	17.0	< 20.0 U	< 5.00 U	< 5.00 U	3.00 J	6.00	3.00 J	13.0
	01/29/02	0.50	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	0.58	< 1.00 U	< 1.00 U	< 1.00 U
	06/25/02	0.59 J	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	1.50	< 1.00 U	< 1.00 U	< 1.00 U
	04/09/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	0.81 J	< 0.32 U	< 0.32 U	< 0.30 U
	07/01/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	0.99 J	< 0.32 U	< 0.32 U	< 0.30 U
	07/01/03*	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	1.1	< 0.32 U	< 0.32 U	< 0.30 U
	02/18/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	0.46 J	< 0.23 U	< 0.18 U	< 0.17 U
	02/18/04*	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	0.48 J	< 0.23 U	< 0.18 U	< 0.17 U
	07/14/04	0.50 J	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	0.73 J	< 0.20 U	< 0.20 U	< 0.20 U
	02/23/05	0.19 J	0.15 J	< 0.15 U	< 0.13 U	< 0.14 U	< 0.11 U	< 2.00 U	< 0.10 U	< 0.10 U	0.35 U	< 0.10 U	< 0.18 U	< 0.20 U
	07/07/05	< 0.10 J	< 0.10 U	< 0.10 U	< 0.10 U	< 0.13 U	< 0.11 U	< 2.00 U	< 0.12 U	< 0.10 U	0.99 J	< 0.14 U	< 0.10 U	< 0.11 U
	05/25/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	0.63 J	< 0.27 U	< 0.17 U	< 0.13 U
GW-19	04/09/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	07/01/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	02/17/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	< 0.23 U	< 0.23 U	< 0.18 U	< 0.17 U
sampled	07/14/04	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
semi-	02/23/05	< 0.11 U	< 0.10 U	< 0.15 U	< 0.13 U	< 0.14 U	< 0.11 U	< 2.00 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.18 U	< 0.20 U
annually	07/07/05	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.13 U	< 0.11 U	< 2.00 U	< 0.12 U	< 0.10 U	< 0.14 U	< 0.10 U	< 0.11 U	< 0.11 U
	05/26/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U
GW-25	04/09/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	0.35 J	< 0.32 U	< 0.32 U	< 0.30 U
	07/02/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	02/18/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	< 0.23 U	< 0.23 U	< 0.18 U	< 0.17 U
sampled	07/13/04	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
semi-	02/23/05	< 0.11 U	< 0.10 U	< 0.15 U	< 0.13 U	< 0.14 U	< 0.11 U	< 2.00 U	< 0.10 U	< 0.10 U	2.40	< 0.10 U	< 0.18 U	< 0.20 U
annually	07/07/05	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.13 U	< 0.11 U	< 2.00 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.14 U	< 0.10 U	< 0.11 U
	05/25/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U

Table 6
VOC Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well No.	Sample Date	Analytes (concentrations in µg/L)													
		Benzene	Chlorobenzene	Chloroform	1,2-Dichloroethane	trans-1,3-Dichloropropene	Ethylbenzene	Methyl methacrylate*	1,1,2,2-Tetrachloroethane	Styrene*	Toluene	1,1,2-Trichloroethane	Trichloroethene (TCE)	Vinyl chloride
		ROD Specified Human Health Criteria or MCL**												
		5**	100**	1.9	5**	87	700**	34,000	1.7	100**	1000**	5**	5**	2**
GW-28	02/01/99	66	13.0	10.0	18.0	9.00	35.0	NA	12.0	NA	13.0	22.0	15.00	18.0
	02/01/99*	70	40.0	< 1.0	10.0	< 1.0	32.0	NA	< 1.0	NA	5.0	13.0	8.00	12.0
	06/01/99	52	2.00	< 1.00	8.00	< 1.00	23.0	NA	< 1.00	NA	3.00	18.0	5.00	7.00
sampled	02/28/00	170	9.70	< 5.00	13.0	< 5.00	85.0	NA	< 5.00	NA	10.00	18.0	13.00	36.0
semi-	07/06/00	131	5.00	< 5.00 U	8.00	< 5.00 U	46.0	NA	< 5.00 U	NA	< 5.00 FJ	24.0	9.00	19.0
annually	12/19/00	60	2.96 J	< 1.00 U	3.55 J	< 5.00 U	25.0	NA	< 1.00 U	< 5.00 U	2.17 J	10.0	6.00	20.0 J
	06/26/01	110	11.0	< 5.00 U	4.00 J	< 5.00 U	21.0	< 20.0 U	< 5.00 U	< 5.00 U	3.00 J	6.00	4.00 J	14.0
	01/29/02	43	1.80	< 1.00 U	4.20	< 1.00 U	15.0	< 1.00 U	< 1.00 U	< 1.00 U	2.30	8.50	3.50	7.30
	06/25/02	70	2.60	< 1.00 U	5.20	< 1.00 U	23.0	< 1.00 U	< 1.00 U	< 1.00 U	4.10	11.0	4.50	12.0
	06/25/02*	72	2.70	< 1.00 U	5.40	< 1.00 U	24.0	< 1.00 U	< 1.00 U	< 1.00 U	3.40 J	12.0	3.90 J	9.2
	04/09/03	39	1.60 U	< 1.60 U	2.50 J	< 1.40 U	14.0	< 2.20 U	< 2.10 U	< 1.30 U	3.40 J	12.0	3.90 J	9.20
	04/09/03*	53	1.90 J	< 1.60 U	3.30 J	< 1.40 U	20.0	< 2.20 U	< 2.10 U	< 1.30 U	4.10 J	12.0	4.80 J	12.00
	07/01/03	17	0.75 J	< 0.32 U	2.60	< 0.28 U	7.20	< 0.44 U	< 0.41 U	< 0.25 U	2.10	12.0	4.90	5.40
	02/18/04	13	0.48 J	< 0.13 U	1.20	< 0.14 U	5.60	< 0.25 U	< 0.19 U	< 0.17 U	1.80	8.60	2.10	3.70
	07/14/04	12.30	1.11	< 0.20 U	2.67	< 0.20 U	13.60	< 4.00 U	< 0.20 U	< 0.20 U	6.17	30.40	12.20	10.10
	02/22/05	< 1.10 U	< 1.00 U	< 1.50 U	< 1.30 U	< 1.40 U	< 1.10 U	< 20 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.80 U	< 2.00 U
	07/07/05	8.70 J	< 1.00 U	< 1.00 U	< 1.00 U	< 1.30 U	12	< 20 U	< 1.20 U	< 1.00 U	3.50 J	10.00	9.40 J	< 11.00 U
	05/26/06	134	3.16	< 0.24 U	3.91	< 0.28 U	32.0	< 0.25 U	< 0.36 U	< 0.26 U	6.04	12.20	11.40	39.9
	05/26/06*	109	2.80	< 0.24 U	3.00	< 0.28 U	26.4	< 0.25 U	< 0.36 U	< 0.26 U	5.08	10.80	9.22	30.8
GW-30	02/01/99	900	250	< 10.0	140	< 10.00	< 10.0	NA	< 10.0	NA	< 10.00	< 10.00	30.00	390
	06/01/99	41	12.0	< 1.00	7.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	1.00	24.0
	02/28/00	81	27.0	< 1.00	11.0	< 1.00	< 1.00	NA	< 1.00	NA	1.20	< 1.00	1.80	45.0
sampled	07/06/00	190	32.0	< 5.00 FJ	18.0	< 5.00 U	< 5F J	NA	< 5.00 U	NA	5F J	< 5.00 U	< 5.00 U	150
semi-	12/19/00	183	33.0	< 1.00 U	18.0	< 5.00 U	0.61 J	NA	< 1.00 UJ	< 5.00	1.58 J	1.50 J	2.99 J	63.0
annually	06/26/01	322	50.0	1.00 J	19.0	< 5.00 U	< 5.00 U	< 20.0 U	< 5.00 U	< 5.00	3.00 J	2.00 J	4.00	68.0
	01/29/02	100	36.0	0.44	15.0	< 1.00 U	0.34	< 1.00 U	< 1.00 U	< 1.00	1.20	0.76	2.60	43.0
	06/25/02	250	50.0	1.00	27.0	< 1.00 U	1.10	< 1.00 U	< 1.00	< 1.00	3.10	1.10	3.30	70.0
	04/09/03	87	23.0	< 0.32 U	4.60	< 0.28	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	0.90 J	< 0.32 U	1.10	34.0
	07/02/03	180	32.0	0.52 J	9.30	< 0.28 U	0.45 J	< 0.44 U	< 0.41 U	< 0.25 U	1.80 U	< 0.32 U	1.70	54.0
	02/18/04	190	50.0	0.37 J	6.60	< 0.14 U	0.45 J	< 0.25 U	< 0.19 U	< 0.17 U	1.80	< 0.23 U	1.30	80.0
	07/13/04	134	33.2	< 0.24 U	6.92	< 0.20 U	0.35 J	< 4.00 U	< 0.20 U	< 0.20 U	< 1.25 U	< 0.20 U	0.90 J	65.3
	02/23/05	130	35.0	0.25 U	< 0.13 U	< 0.01 U	0.23	< 2.00 U	< 0.10 U	< 0.10 U	1.20	< 0.10 U	0.82 J	54.0
	02/23/05*	120	36.0	0.24 U	< 0.13 U	< 0.14 U	0.28	< 2.00 U	< 0.10 U	< 0.10 U	1.30	< 0.10 U	0.97 J	58.0
	07/07/05	150	45.0	0.19 J	0.10 U	< 0.13 U	0.32 J	< 2.00 U	< 0.12 U	< 0.10 U	1.30	< 0.14 U	0.85 J	63.0
	07/07/05*	140	45.0	0.18 J	< 0.10 U	< 0.13 U	0.30 J	< 2.00 U	< 0.12 U	< 0.10 U	1.30	< 0.14 U	0.88 J	77.0
	05/25/06	155	44.8	< 0.24 U	3.83	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	1.26	< 0.27 U	0.75 J	69.2

Table 6
VOC Detections in Ground Water in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well No.	Sample Date	Analytes (concentrations in µg/L)													
		Benzene	Chlorobenzene	Chloroform	1,2-Dichloroethane	trans-1,3-Dichloropropene	Ethylbenzene	Methyl methacrylate*	1,1,2,2-Tetrachloroethane	Styrene*	Toluene	1,1,2-Trichloroethane	Trichloroethene (TCE)	Vinyl chloride
		ROD Specified Human Health Criteria or MCL**												
		5**	100**	1.9	5**	87	700**	34,000	1.7	100**	1000**	5**	5**	2**
GW-32	02/01/99	< 1.00	< 1.00	< 1.00	2.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	06/01/99	< 1.00	< 1.00	< 1.00	2.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	06/01/99*	< 1.00	< 1.00	< 1.00	2.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
sampled	02/28/00	< 1.00	< 1.00	< 1.00	1.60	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 2.00
during	07/06/00	< 5.00 U	< 5.00 U	< 5.00 U	< 5F J	< 5.00 U	< 5.00 U	NA	< 5.00 U	NA	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
5-year	12/19/00	< 5.00 U	< 5.00 U	< 1.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	NA	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 UJ
review	06/26/01	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 20.0 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 2.00 U
	01/29/02	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
	06/25/02	< 1.00 U	< 1.00 U	< 1.00 U	1.50	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 UJ
	05/25/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U

Notes:
Blue shading and bold - Indicates the analyte exceeded the Human Health Criteria or MCL.
* - Indicates the sample is a duplicate of the preceding sample.
** - Indicates use of MCL in place of the Human Health Criteria from the ROD
U - The analyte was analyzed for, but not detected.
J - The analyte was positively identified, the quantitation is an estimate.
UJ - The analyte was analyzed for but was not detected above the reported sample quantitation limit. The associated value is an estimated quantitation limit.
FJ - The analyte was positively identified but the associated value is below the reporting limit.
R - The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
NA - Not analyzed for.
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
ROD - Record of Decision

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Table 7
VOC Detections in Ground Water in the Deeper Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Well No.	Sample Date	Analytes (concentrations in µg/L)												
		Benzene	Chlorobenzene	Chloroform	1,2-Dichloroethane	trans-1,3-Dichloropropene	Ethylbenzene	Methyl methacrylate*	1,1,2,2-Tetrachloroethane	Styrene*	Toluene	1,1,2-Trichloroethane	Trichloroethene (TCE)	Vinyl chloride
		ROD Specified Human Health Criteria or MCL**												
		5**	100**	1.9	5**	87	700**	34,000	1.7	100**	1000**	5**	5**	2**
GW-29	06/01/99	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	07/06/00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	< 5.00 U	NA	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
well is sampled semi-annually	07/06/00*	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	NA	< 5.00 U	NA	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U
	06/26/01	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 20.0 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 2.00 U
	06/25/02	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
	04/09/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	07/01/03	< 0.30 U	< 0.32 U	< 0.32 U	< 0.27 U	< 0.28 U	< 0.31 U	< 0.44 U	< 0.41 U	< 0.25 U	< 0.32 U	< 0.32 U	< 0.32 U	< 0.30 U
	02/18/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14 U	< 0.30 U	< 0.25 U	< 0.19	< 0.17 U	< 0.23 U	< 0.23 U	< 0.18 U	< 0.17 U
	07/14/04	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
	02/22/05	< 0.11 U	< 0.10 U	< 0.15 U	< 0.13 U	< 0.14 U	< 0.11 U	< 2.00 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.18 U	< 0.20 U
	07/07/05	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.13 U	< 0.11 U	< 2.00 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.14 U	< 0.10 U	< 0.11 U
	05/26/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U
GW-31	06/01/99	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	NA	< 1.00	NA	< 1.00	< 1.00	< 1.00	< 1.00
	07/06/00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00	< 5.00 U	< 5.00 U	< 5.00 U	< 5.00 UJ
well is sampled semi-annually	06/25/02	0.33 J	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U	< 1.00 U
	02/18/04	< 0.22 U	< 0.13 U	< 0.13 U	< 0.17 U	< 0.14	< 0.30 U	< 0.25 U	< 0.19 U	< 0.17 U	< 0.23 U	< 0.23 U	< 0.18 U	< 0.17 U
	07/14/04	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 4.00 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U	< 0.20 U
	02/22/05	< 0.11 U	< 0.10 U	< 0.15 U	< 0.13 U	< 0.14 U	< 0.11 U	< 2.00 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.18 U	< 0.20 U
	07/07/05	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.13 U	< 0.11 U	< 2.00 U	< 0.12 U	< 0.10 U	< 0.10 U	< 0.14 U	< 0.10 U	< 0.11 U
	05/25/06	< 0.24 U	< 0.18 U	< 0.24 U	< 0.19 U	< 0.28 U	< 0.26 U	< 0.25 U	< 0.36 U	< 0.26 U	< 0.14 U	< 0.27 U	< 0.17 U	< 0.13 U

Notes:
Blue shading and **bold** - Indicates the analyte exceeded the Human Health Criteria or MCL.
** - Indicates use of MCL in place of the Human Health Criteria from the ROD
U - The analyte was analyzed for, but not detected.
J - The analyte was positively identified, the quantitation is an estimate.
UJ - The analyte was analyzed for but was not detected above the reported sample quantitation limit. The associated value is an estimated quantitation limit.
NA - Not analyzed for.
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
ROD - Record of Decision

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Table 8
Detections in Surface Water in the Ponds at Love Marina
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Sample Location	Sample Date	Analytes (all concentrations in µg/L)																		
		Beryllium	Cadmium[3]	Chromium, Total[2,3]	Lead[3]	Mercury	Nickel[3]	Thallium	Benzene	Chlorobenzene	Chloroform	1,2-Dichloroethane	trans-1,3-Dichloropropene	Ethylbenzene	Methyl methacrylate	1,1,2,2-Tetrachloroethane	Styrene	Toluene	1,1,2-Trichloroethane	Trichloroethene (TCE)	Vinyl chloride
Surface Water Quality Standard for the Protection of Aquatic Life	**Freshwater Chronic**	**5.3[a]**	**0.64[b]**	**4.74[b]**	**1.15[b]**	**1.3[b]**	**93.42[b]**	**4[a]**	**130[a]**	**64[a]**	**890[a]**	**6300[a]**	**205[a]**	**1090[a]**	**11620[a]**	**465[a]**	**1250[a]**	**1450[a]**	**900[a]**	**555[a]**	**2820[a]**
Surface Water Quality Standard for the Protection of Human Health	**Freshwater Fish Only**		—	**3320[b]**	**25.3[b]**	**0.0122[b]**	**4600[a]**	**0.47[a]**	**106[b]**	**1380[b]**	**1292[b]**	**73.9[b]**	**161[b]**	**2100[a]**		**40[a]**		**15000[a]**	**160[a]**	**612[b]**	**415[b]**
West Pond	05/25/06	<0.3 U	<0.15 U	**2.22 J**	**1.04 J**	<0.1 U	**1.15 J**	<0.4 U	<0.24 U	<0.18 U	<0.24 U	<0.19 U	<0.28 U	<0.26 U	<0.25 U	<0.36 U	<0.26 U	<0.14 U	<0.27 U	<0.17 U	<0.13 U
West Pond[1]	05/25/06	<0.3 U	<0.15 U	**7.23**	**0.785 J**	<0.1 U	**1.11 J**	<0.4 U	<0.24 U	<0.18 U	<0.24 U	<0.19 U	<0.28 U	<0.26 U	<0.25 U	<0.36 U	<0.26 U	<0.14 U	<0.27 U	<0.17 U	<0.13 U
East Pond	05/25/06	<0.3 U	<0.15 U	<0.5 U	**0.561 J**	<0.1 U	**1.08 J**	<0.4 U	**0.85 J**	<0.18 U	<0.24 U	<0.19 U	<0.28 U	<0.26 U	<0.25 U	<0.36 U	<0.26 U	<0.14 U	<0.27 U	<0.17 U	**0.89 J**

Notes:
1 - Duplicate sample
2 - Table 1 of the Texas Surface Water Quality Standards contains calculations for Chromium III and Chromium VI. Chromium III is used for the comparison to total Chromium.
3 - Dissolved criteria concentrations
* - Standard is based on the Maximum Contaminant Level
µg/L - micrograms per liter
mg/L - milligrams per liter
TAC - Texas Administrative Code
TCEQ - Texas Commission on Environmental Quality
PCL - Protective Concentration Level
U - The analyte was analyzed for, but not detected.
J - The analyte was positively identified, the quantitation is an estimate.
Detections are in Bold and highlighted in blue

[a] TCEQ, 2006. Determining PCLs for Surface Water and Sediment. RG-366/TRRP-24 (Revised). September 2002.
[b] TCEQ, 2000. Chapter 307: Texas Surface Water Quality Standards §§307.1 - 307.10. August 17, 2000.

Chronic risk to aquatic life and human health risk to fish ingestion are current potential surface water pathways evaluated by comparison of site pond concentrations to Texas surface water quality standards (TCEQ, 2000). When standards were not available, aquatic life and human health surface water risk based exposure levels from the *TCEQ Regulatory Guidance, Determining PCLs for Surface Water and Sediment RG-366/TRRP 24* were used in the comparison.

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Table 9
Recommendations and Follow-up Actions
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Deficiencies	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)
Locks are not present on the access gates to monitor wells GW-7 and GW-27.	Place locks on the access gates at monitor wells GW-7 and GW-27.	TCEQ	EPA	N[1]
Drums containing purge water are currently stored inside the security fence at wells GW-28/GW-29 and at monitor well GW-35. The drums at GW-28/GW-29 are rusted. The drum at GW-35 appears to be in good condition.	Dispose the purge water contained in the drums at monitor wells GW-28/GW-29 and GW-35 in accordance with the O&M Plan. The drums at GW-28/GW-29 are deteriorating and should be replaced. All purge water generated as part of sampling activities should be disposed during the following sampling event in accordance with the O&M Plan.	TCEQ	EPA	N
There were two monitor wells (SI-116 and INT-116) located during the site inspection that are not shown on site maps. These wells are not a part of the current monitoring program. At the surface, the wells appear to be in good condition.	Evaluate the two wells (SI-116 and INT-116) located on the road along the eastern site perimeter approximately 100 yards north of the intersection with US Highway 90. These wells should be either incorporated into the ground water monitoring program and the O&M Plan, as appropriate, or properly plugged and abandoned.	TCEQ	EPA	N

Table 9
Recommendations and Follow-up Actions
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Deficiencies	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)
Since the ROD was signed, MCLs have been established for several site contaminants that are lower than the human health criteria defined in the ROD. The ROD identified human health criteria or drinking water standards as the remedial objective for the contaminated ground water. The MCLs established for cadmium, lead, thallium, benzene, chlorobenzene, 1,2-dichloroethane, ethylbenzene, toluene, 1,1,2-trichloroethane, trichloroethene, and vinyl chloride are below the human health criteria defined in the ROD	Revised the ground water criteria to the lower value of the ROD-specified human health criteria or the MCL. Since the ROD was signed in September 1986, MCLs have been promulgated or revised for several site contaminants that are lower than the human health criteria defined in the ROD. To ensure the protection of human health through the ground water pathway, the ground water criteria for determining the protectiveness in the shallow ground water are revised to the lower value of either the ROD-specified human health criteria or the MCL. The current and revised concentrations are described in Table 2. Future five-year reviews must re-evaluate the MCLs relative to the human health criteria and adjust the values as appropriate to maintain the protectiveness of the remedy.	TCEQ	EPA	N[1]
The concentrations of several contaminants have recently increased in the shallow aquifer in monitor wells GW-15 (beryllium), GW-28 (benzene, trichloroethene, and vinyl chloride), and GW-30 (vinyl chloride), located near and upgradient of the ponds at the Love Marina.	Continue to monitor the ground water in accordance with the O&M Plan and continue to monitor the surface water in the two ponds located at the Love Marina. If contaminant concentrations continue to increase in the shallow ground water, it will be necessary to evaluate measures to address the contamination and potential contaminant migration to the ponds and offsite receptors in	TCEQ	EPA	N[1]

Table 9
Recommendations and Follow-up Actions
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

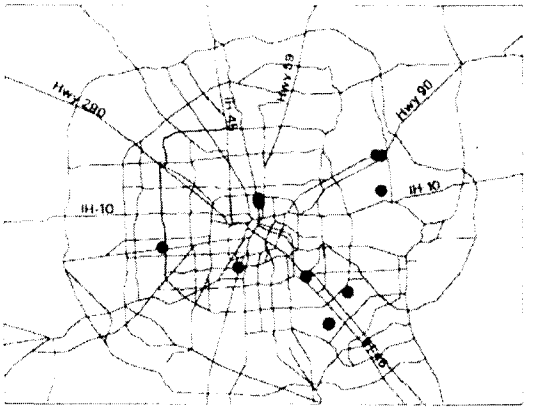
Deficiencies	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)
	ground water. In addition, contaminant concentrations in the two ponds should continue to be monitored to verify that concentrations in the ponds meet the most current surface water quality standards and Protective Concentration Levels (PCLs) established by the TCEQ.			
In one of two duplicate surface water samples collected from the west pond in the May 2006 sampling event, the chromium concentration exceeded the Texas surface water quality standard for the protection of aquatic life. In the second duplicate surface water sample, chromium was detected, but was below the standard. The Texas surface water quality standards are specified as an ARAR for the site in the ROD.	Continue monitoring the surface water to verify the chromium concentration in the west pond. If it is determined that the chromium concentration does in fact exceed the aquatic life surface water quality standard, then the source of the chromium contamination in the west pond should be determined. Additional action may also be required to address the chromium exceedance in surface water to protect aquatic life.	TCEQ	EPA	N[1]
Access to the site on the northern entrance is restricted by a lock maintained by the property owner. Currently, the TCEQ does not have keys to the lock at the northern entrance. During sampling events and site visits, sampling personnel must notify the property owner a day or two prior to the sampling event to gain access to the site through the northern gate.	Make arrangements for more convenient access through the northern entrance to the site for sampling events. The TCEQ has indicated they plan to work out an agreement with the property owner to have access and a separate lock to the northern entrance of the site.	TCEQ	EPA	N

Table 9
Recommendations and Follow-up Actions
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

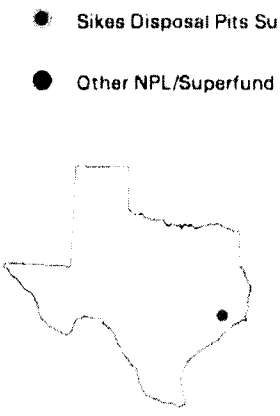
Deficiencies	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Follow-up Actions: Affects Protectiveness (Y/N)
Deed notices describing the site hazards are not in place for all properties within the boundary of the site. Deed notices are on file at the Harris County Clerk's office for the properties owned by Mr. Richard O. Sikes, Mr. Jim Love, and Mr. M.W. McCledon. However, these three deed notices do not cover the ground water area of the site in its entirety. The properties of Mr. William N. Parker and Larry Anderson are inside the site boundary and no deed notices for these two properties were found in the Harris Clerk's office real property records.	Evaluate the need for deed notices to be put into place describing site hazards for the properties of Mr. William N. Parker and Mr. Larry Anderson.	TCEQ	EPA	N[1]

1. Although performance of these activities will not directly affect the protectiveness of the remedy in and/of themselves, they are required to allow appropriate monitoring to ensure the remedy continues to be protective.

Sikes Disposal Pits
Location Map



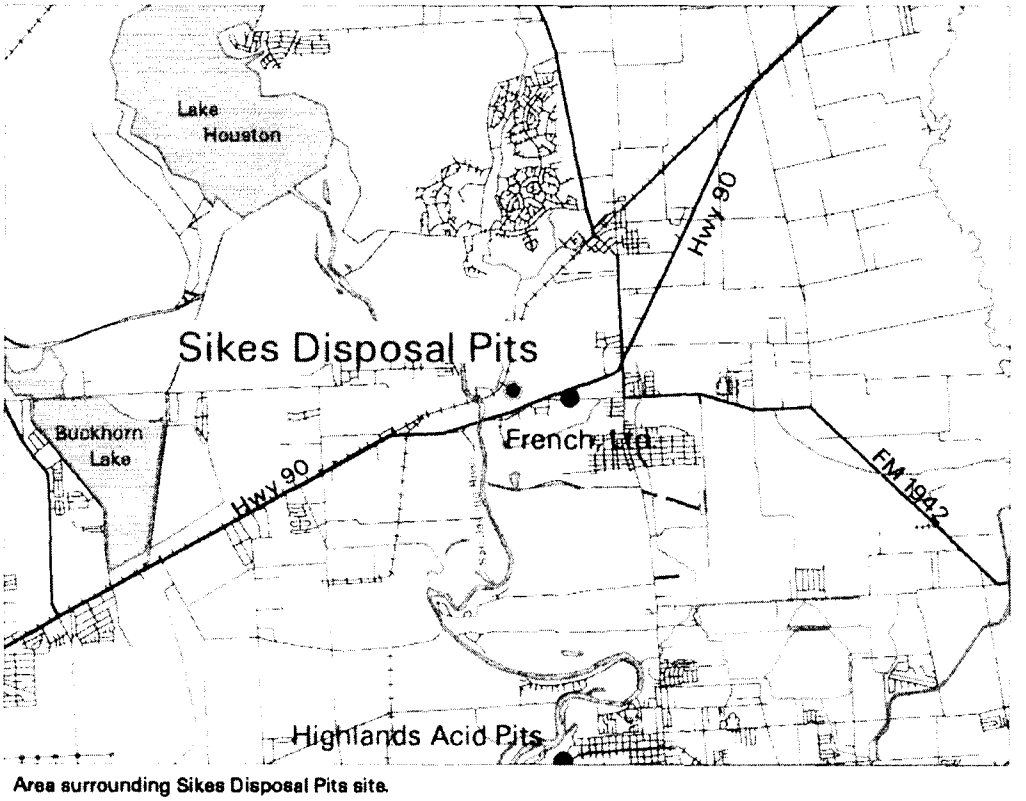
Greater Houston Area



● Sikes Disposal Pits Superfund Site

● Other NPL/Superfund Sites

CDSI



Area surrounding Sikes Disposal Pits site.

Sources:1992 US Census TIGER/Line Files
EPA Region 6, Superfund GIS coverage, 1998

Plotted on March 27, 1998

* Reproduced from EPA, Second Five-Year Review, 2001

Figure 1
Sikes Disposal Pits Location Map
Crosby, Harris County, Texas

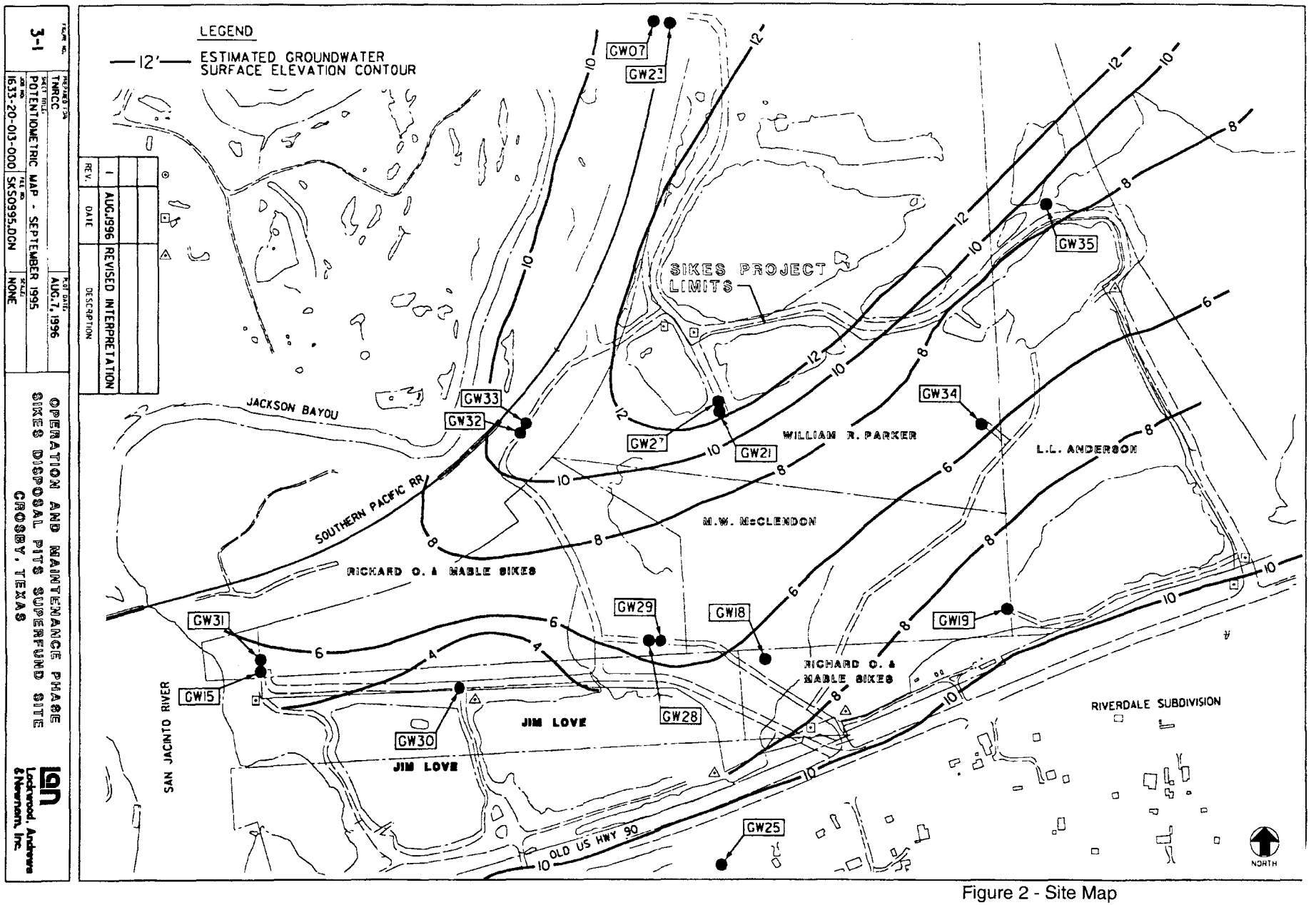


Figure 2 - Site Map
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

* Reproduced from EPA, Second Five-Year Review, 2001

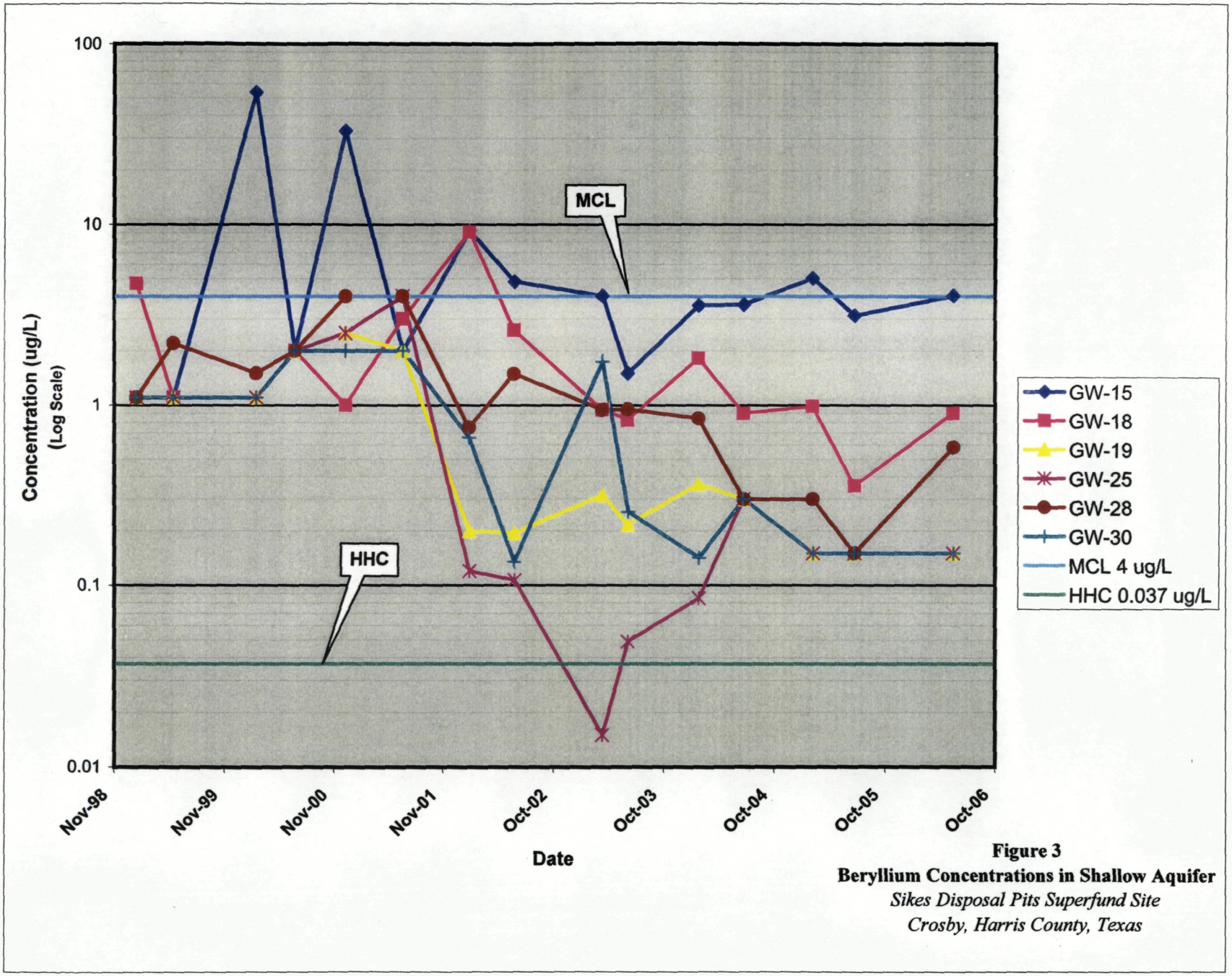


Figure 3
Beryllium Concentrations in Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

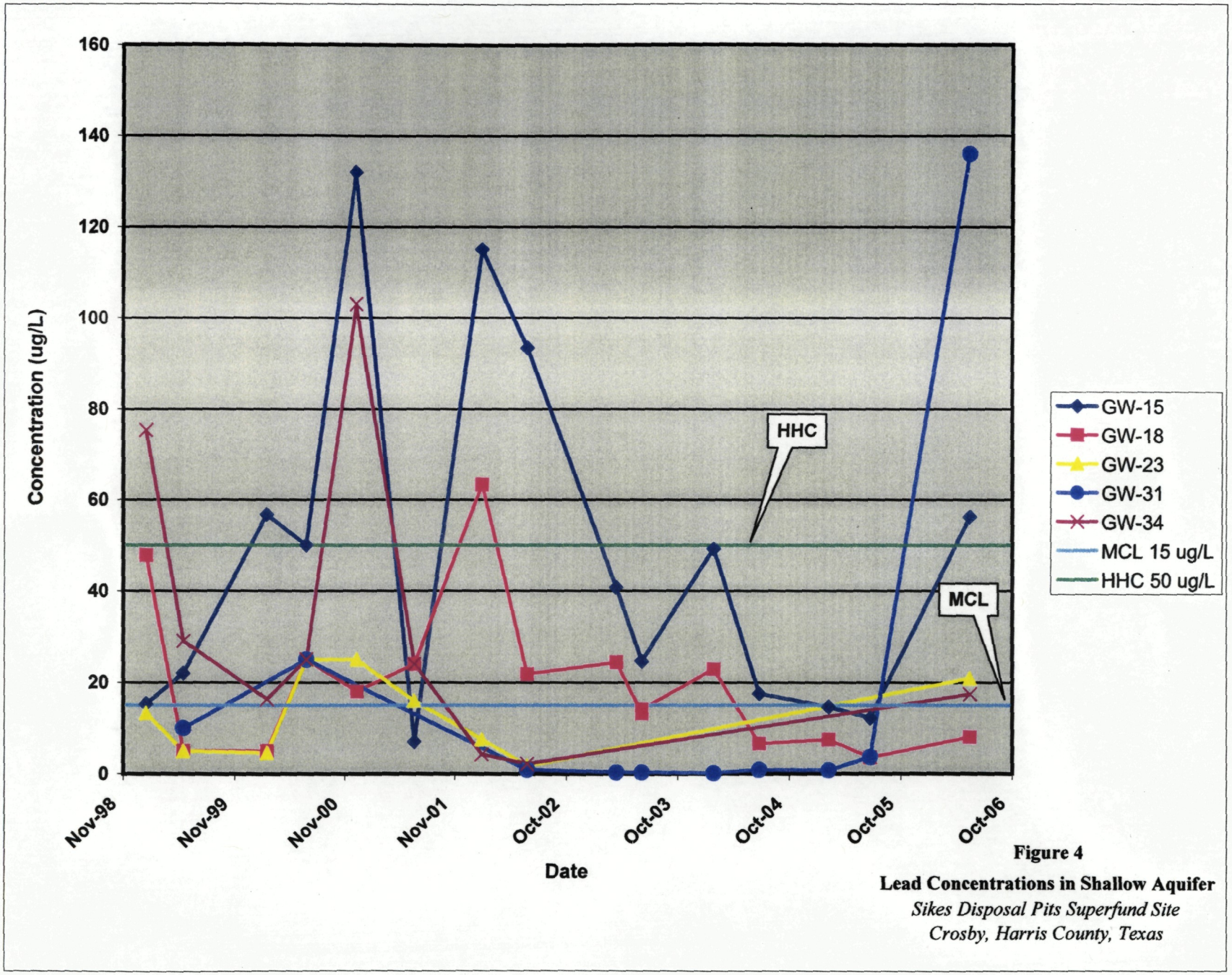


Figure 4

Lead Concentrations in Shallow Aquifer

Sikes Disposal Pits Superfund Site

Crosby, Harris County, Texas

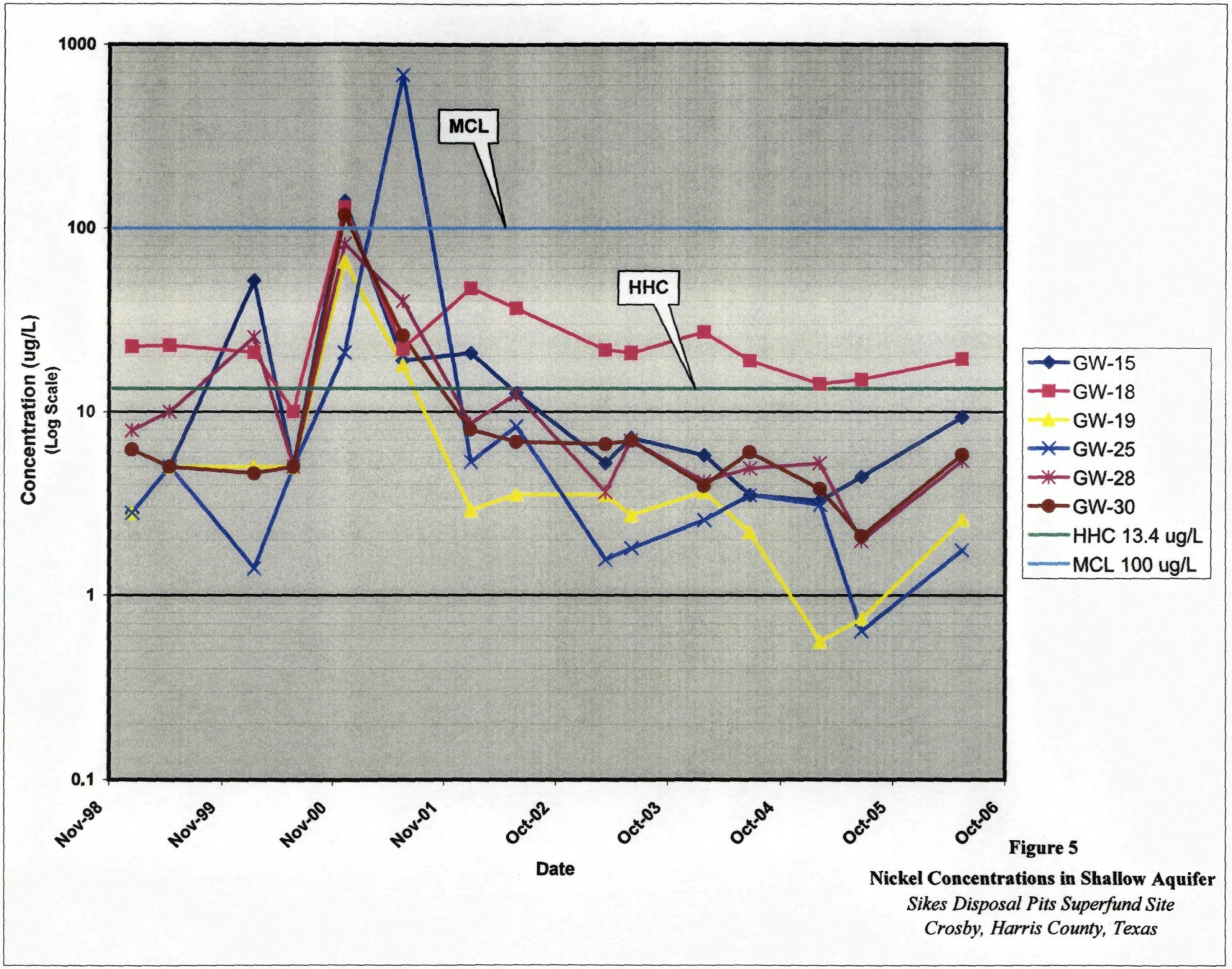


Figure 5

Nickel Concentrations in Shallow Aquifer

Sikes Disposal Pits Superfund Site

Crosby, Harris County, Texas

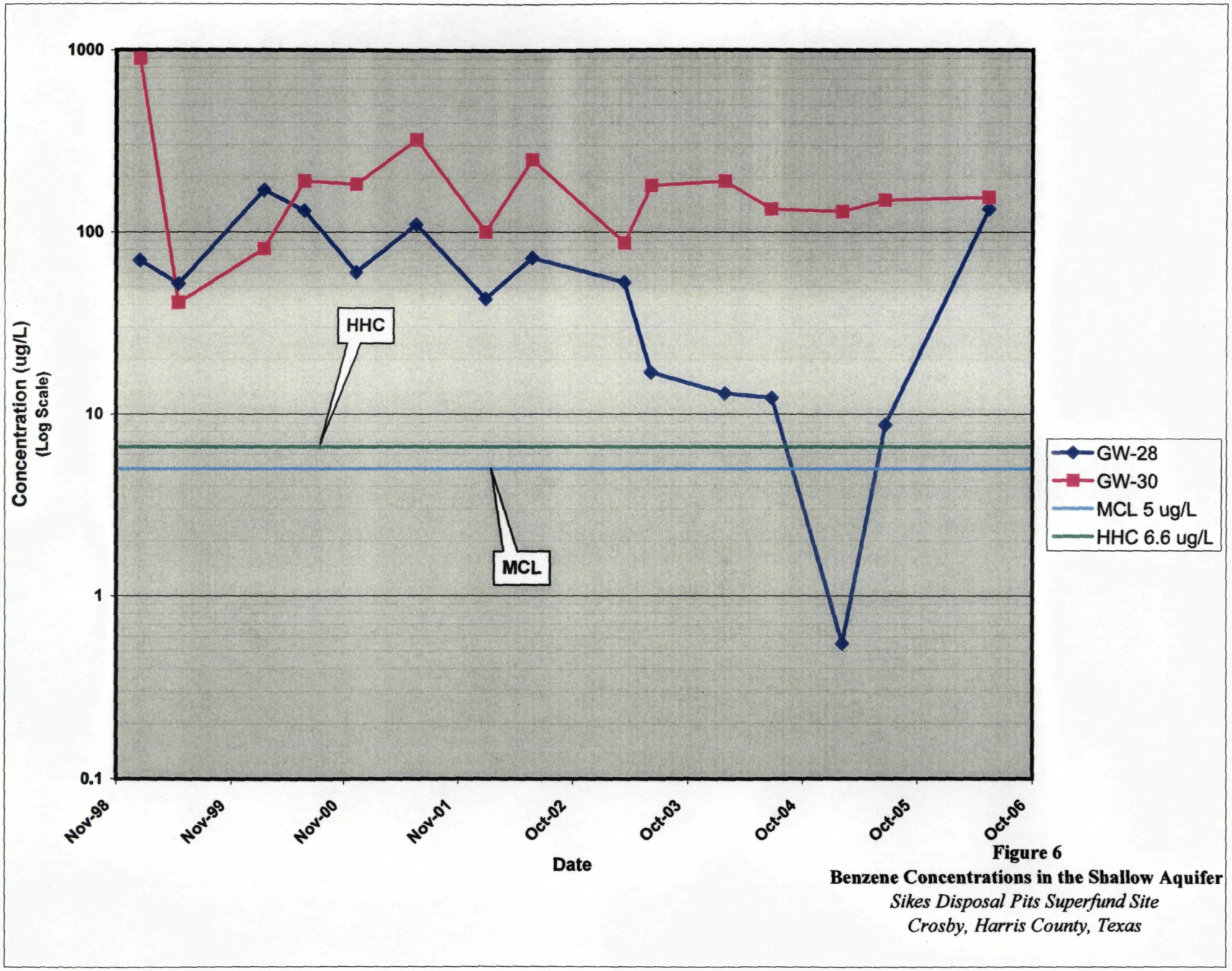


Figure 6
Benzene Concentrations in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

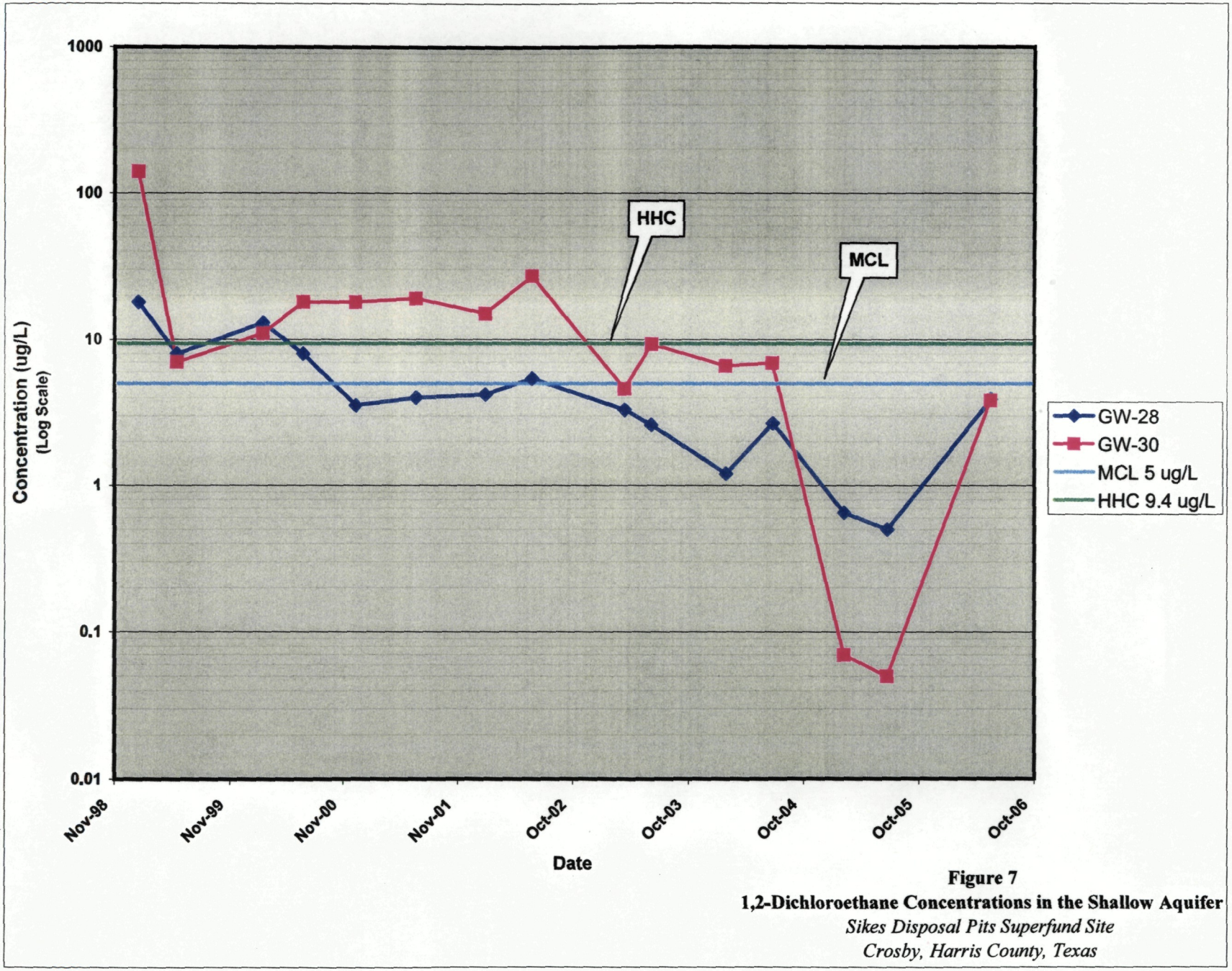


Figure 7
1,2-Dichloroethane Concentrations in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

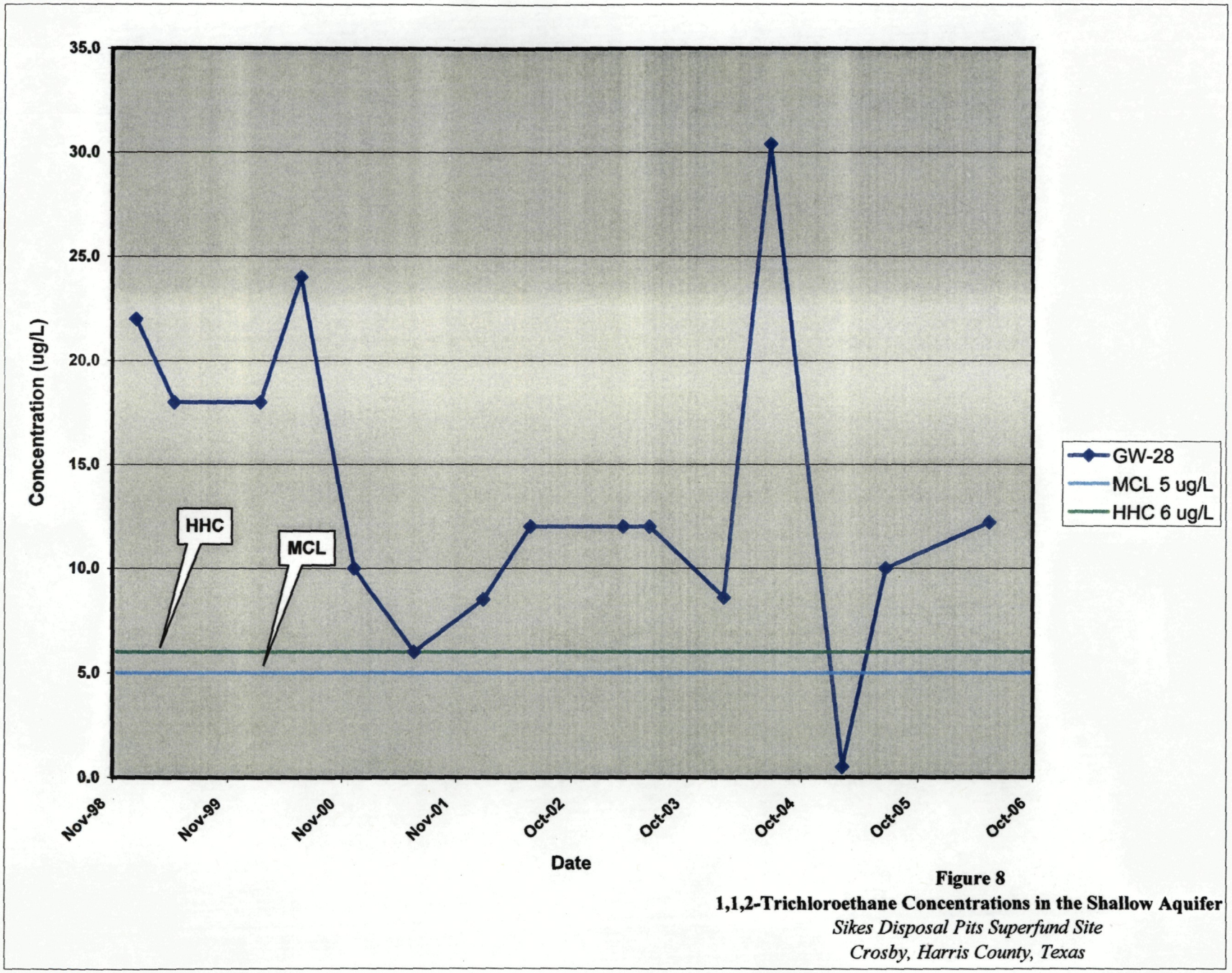


Figure 8
1,1,2-Trichloroethane Concentrations in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

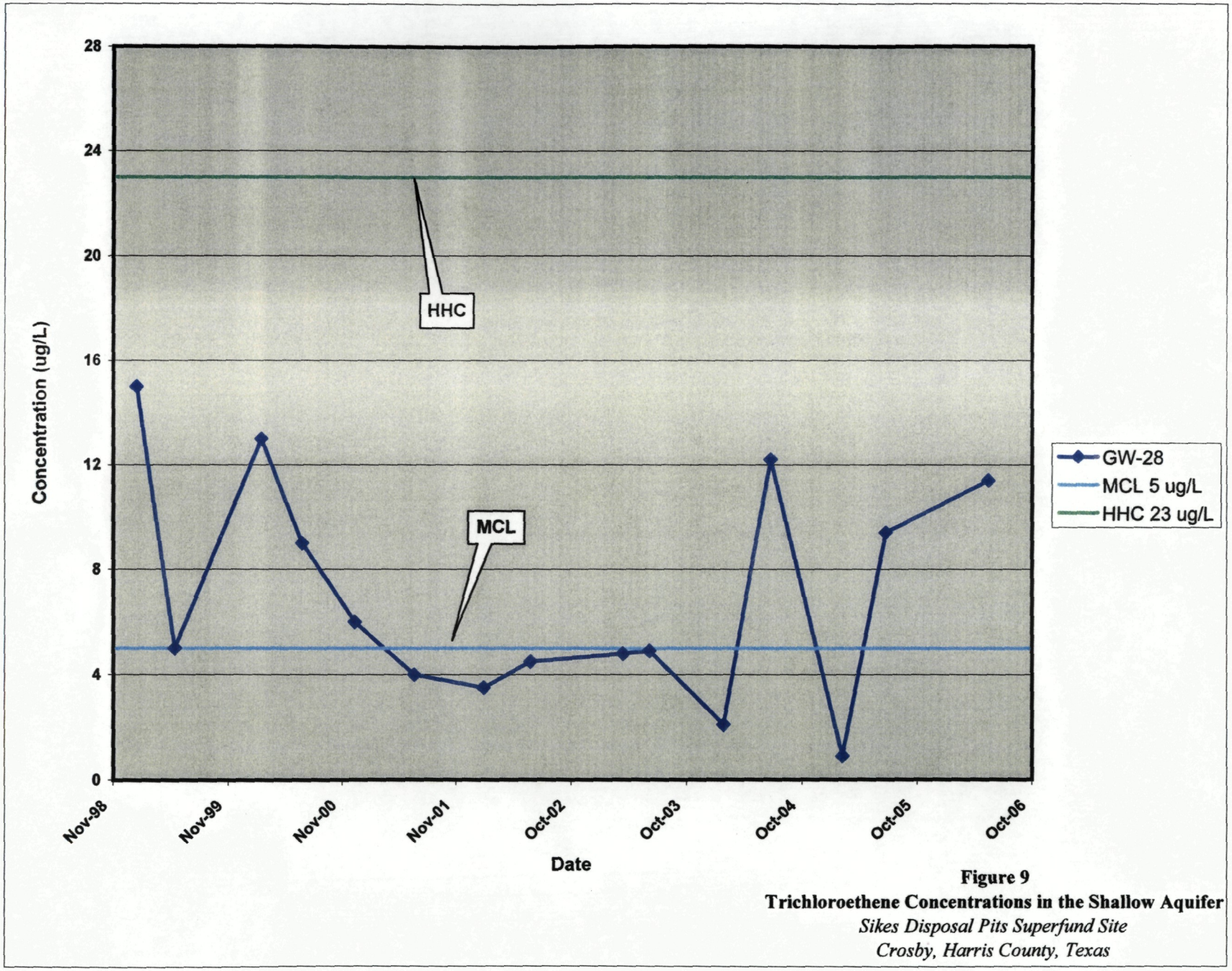


Figure 9
Trichloroethene Concentrations in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

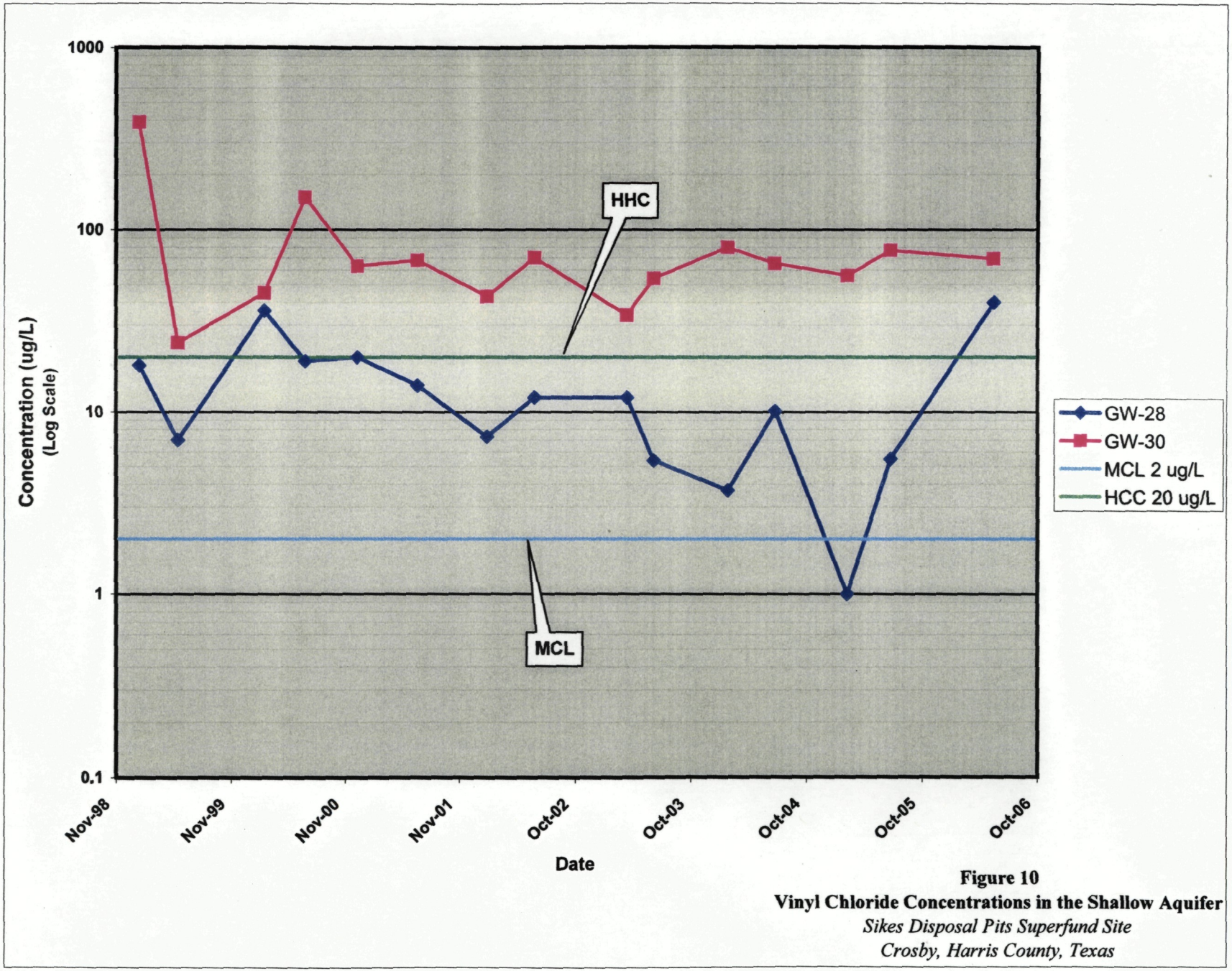


Figure 10
Vinyl Chloride Concentrations in the Shallow Aquifer
Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas

Attachment 1
Documents Reviewed

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Attachment 1
Documents Reviewed

Daniel B. Stevens & Associates, Inc. (DBS&A), 2001. *Ground Water Monitoring Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* August 2001.

Daniel B. Stevens & Associates, Inc. (DBS&A), 2002. *Ground Water Monitoring Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* August 2002.

Daniel B. Stevens & Associates, Inc. (DBS&A), 2003a. Operation and Maintenance Plan, *Sikes Disposal Pits Superfund Site.* Prepared in cooperation with the Texas Natural Resources Conservation Commission and the United States Environmental Protection Agency. February 2003.

Daniel B. Stevens & Associates, Inc. (DBS&A), 2003b. *Ground Water Monitoring Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* August 2003.

Daniel B. Stevens & Associates, Inc. (DBS&A), 2004. *Ground Water Monitoring Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* September 2004.

Daniel B. Stevens & Associates, Inc. (DBS&A), 2005. *Ground Water Monitoring Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* October 2005.

Shaw Environmental & Infrastructure, Inc. (SHAW), 2006. *Analytical Lab Report, Sikes Disposal Pits Superfund Site, Crosby, Texas.* June 2006.

Texas Commission on Environmental Quality (TCEQ), 2002. *Determining PCLs for Surface Water and Sediment.* RG-366/TRRP-24 (Revised). September, 2002.

United States Environmental Protection Agency (EPA), 1986. *Record of Decision, Remedial Alternatives Selection.* September 18, 1986.

United States Environmental Protection Agency (EPA), 1998. *Five Year Review, Sikes Disposal Pits Superfund Site, Crosby, Texas.* April, 1998.

United States Environmental Protection Agency (EPA), 2000. *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups.* EPA 540-F-00-005. September 2000.

United States Environmental Protection Agency (EPA), 2001a. *Comprehensive Five-Year Review Guidance.* EPA 540-R-01-007. June 2001.

United States Environmental Protection Agency (EPA), 2001b. *Five-Year Review Report: Second Five-Year Review Report for Sikes Disposal Pits Superfund Site, Crosby, Harris County, Texas.* September 2001.

United States Environmental Protection Agency (EPA), 2005. *Institutional Controls: A Citizen's Guide to Understanding Institutional Controls at Superfund, Brownfields, Federal Facilities, Underground Storage Tank, and Resource Conservation and Recovery Act Cleanups.* EPA-540-R-04-003. February 2005.

United States Environmental Protection Agency (EPA), 2006. *Fact Sheet, Sikes Disposal Pits Superfund Site, Harris County, Texas.* July 2006.

Attachment 2
Interview Record Forms

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Five-Year Review Interview Record Sikes Disposal Pits Crosby, Harris County, Texas	**Interviewee: Richard O. Sikes** **Affiliation: Property Owner** **Telephone:** **Email address:**

Site Name	EPA ID Number	Date of Interview	Interview Method
Sikes Disposal Pits Superfund Site	EPA ID# TXD980513956	August 10, 2006	In person

Interview Contacts

Name	Organization	Phone	Email	Address
Gary Miller	EPA Region 6	214-665-8318	Miller.Garyg@epamail.epa.gov	1445 Ross Ave Dallas, Texas 75202
Darren, Davis	CH2M HILL, EPA contractor	972-980-2170 ext 207	ddavis9@ch2m.com	12377 Merit, Suite 1000 Dallas, Texas 75251
Victor Martinez	CH2M HILL, EPA contractor	972-980-2170 ext 253	vmartin1@ch2m.com	12377 Merit, Suite 1000 Dallas, Texas 75251

Purpose of the Five-Year Review

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, to confirm that human health and the environment continue to be protected by the remedial actions performed. This interview is being conducted as a part of the third five-year review for the Sikes Disposal Pits Site. The period covered by this five-year review is from completion of the second five-year review (September 27, 2001) to current.

Interview Questions

1. What is your overall impression of the work conducted at the site since the second Five-Year Review (September 27, 2001)?

Response: Mr. Sikes stated that he is not aware of any problems related to the site.

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

Response: Mr. Sikes indicated that no such events have occurred. He stated that he sometimes has problems with people trespassing to fish in the ponds on his property. He also stated that he tells people not to eat the fish in the ponds.

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

Response: Mr. Sikes indicated that he is interested in knowing the results of any samples collected from the ponds at the site. He also stated that two gates (one next to his house and the gate on the east side of the site) are in need of repairs.

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Five-Year Review Interview Record Sikes Disposal Pits Crosby, Harris County, Texas	**Interviewee:** **Omar Valdez** **Affiliation:** **TCEQ** **Telephone:** (512)-239-6858 **Email address:** OValdez@tceq.state.tx.us

Site Name	**EPA ID Number**	**Date of Interview**	**Interview Method**
Sikes Disposal Pits Superfund Site	EPA ID# TXD980513956	August, 16 2006	Responses provided by Mr. Valdez via email.

Interview Contacts

Name	**Organization**	**Phone**	**Email**	**Address**
Gary Miller	EPA Region 6	214-665-8318	Miller.Garyg@epamail.epa.gov	1445 Ross Ave Dallas, Texas 75202
Darren, Davis	CH2M HILL, EPA contractor	972-980-2170 ext 207	ddavis9@ch2m.com	12377 Merit, Suite 1000 Dallas, Texas 75251
Victor Martinez	CH2M HILL, EPA contractor	972-980-2170 ext 253	vmartin1@ch2m.com	12377 Merit, Suite 1000 Dallas, Texas 75251

Purpose of the Five-Year Review

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, to confirm that human health and the environment continue to be protected by the remedial actions performed. This interview is being conducted as a part of the third five-year review for the Sikes Disposal Pits Site. The period covered by this five-year review is from completion of the second five-year review (June 2001) to current.

Interview Questions

1. What is your overall impression of the work conducted at the site since the second Five-Year Review (June 2001)?

Response: The work at the site has adhered closely to the latest revision of the site specific Operations and Maintenance Plan.

2. From your perspective, what effects have continued remedial operations at the site had on the surrounding community? Are you aware of any ongoing community concerns regarding the site in regard to its operation and maintenance or other issues?

Response: There has not been sufficient contact with the surrounding community to adequately comment. Nevertheless, in obtaining access and coordinating field work with the two parties most affected by continued remedial operations, Mr.Sikes and Mr. Love, TCEQ personnel and retained contractors have found Mr. Love to be understanding of the field work and Mr. Sikes to be increasingly cooperative.

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

Response: Routine communications with Mr. Love and Mr. Sikes preceding field work are conducted and documented. More notably, on October 6, 2005, TCEQ personnel and a retained contractor inspected the site after hurricane Rita passed through the area. No damage to the site was noted- all monitor wells, well pads, surface stickup completions and fencing were intact. This is documented in the corresponding Shaw Environmental, Inc. report dated October 18, 2005.

4. Are you aware of any unanticipated events, incidents, or activities that have occurred at the site, such as dumping, vandalism, fire, or anything that required emergency response from local authorities? If so, please give details. Response: No such events, incidents, or activities are known to have occurred at the site.
5. Have there been any complaints, violations or other incidents related to the site that required a response by your office? If so, please summarize the events and results. Response: No complaints, violations, or other such incidents have occurred at the site to our knowledge.
6. Are you aware of any problems or difficulties encountered since the second five year review period (June 2001) which impacted the operation of the facility or a change in O&M procedures? Please describe the changes and impacts. Response: We are not aware of any problems since the second five year review that have impacted O&M procedures.
7. Have there been any changes in state or local environmental standards since the second five-year review period (June 2001) that may call into question the protectiveness or effectiveness of the remedial action? Response: There have not been any changes in environmental standards at the state or local level that would affect the protectiveness or effectiveness of the remedial action to my knowledge.
8. What is the status of groundwater monitoring? Response: Semi-annual monitoring of the site monitoring wells continues as prescribed by the O&M Plan.
9. What are the O&M costs related to the site? Have you noticed any significant changes in the O&M costs? Response: O&M costs are roughly $70,000 a year. Increases in O&M costs are directly related to changes in environmental consulting and contracting changes, including laboratory costs.
10. Do you have any comments, suggestions, or recommendations regarding the site? Response: Sampling of the ponds nearest the shallow wells containing elevated concentrations of chemicals of concern has been included in the O&M plan for this site.

Attachment 3
Site Inspection Checklist

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Sikes Disposal Pits Superfund Site
Crosby, Harris County, Texas
Five-Year Review Site Inspection Checklist

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program. N/A means -"not applicable".

I. SITE INFORMATION	
Site Name: Sikes Disposal Pits Superfund Site	**EPA ID:** TXD980513956
City/State: Crosby, Harris County, Texas	**Date of Inspection:** 08/10 /2006
Agency Completing 5 Year Review: EPA	**Weather/temperature:** Partly Cloudy, Low 90's

Remedy Includes: (Check all that apply)
- ☐ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Other: Only access to monitor wells is restricted

Attachments: ☒ Inspection team roster attached ☒ Site map attached

II. INTERVIEWS (Check all that apply)

1. O&M site manager **Texas Commission on Environmental Quality**:
   Name: Omar Valdez
   Title: **Project Manager**
   Date: 08/10/2006
   Interviewed: ☐ at site ☐ at office ☐ by phone Phone Number:
   Problems, suggestions: ☒ Additional report attached (if additional space required).

2. O&M staff: NA
   Name:
   Title:
   Date:
   Interviewed: ☐ at site ☐ at office ☐ by phone Phone Number:
   Problems, suggestions: ☐ Additional report attached (if additional space required).

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

Agency:
Contact:
Name
Title:
Date:
Phone Number:
Problems, suggestions: ☐ Additional report attached (if additional space required).

Agency:
Contact:
Name:
Title:
Date:
Phone Number:
Problems, suggestions: ☐ Additional report attached (if additional space required).

Agency:
Contact:
Name:
Title:
Date:
Phone Number:
Problems, suggestions: ☐ Additional report attached (if additional space required).

Agency:
Contact:
Name:
Title:
Date:
Phone Number:
Problems, suggestions: ☐ Additional report attached (if additional space required).

2. Other interviews (optional) ☐ N/A ☒ Additional report attached (if additional space required).

III. ONSITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

☒ O&M Manuals	☐ Readily available	☐ Up to date	☒ N/A
☐ As-Built Drawings	☐ Readily available	☐ Up to date	☒ N/A
☐ Maintenance Logs	☐ Readily available	☐ Up to date	☒ N/A

Remarks: O&M Manual is kept by the State and provided to subcontractors for groundwater sampling. There are no on-site facilities.

2.	Health and Safety Plan Documents			
	☒ Site-Specific Health and Safety Plan	☐ Readily available	☐ Up to date	☐ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
3.	O&M and OSHA Training Records	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
4.	Permits and Service Agreements			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
5.	Gas Generation Records	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
6.	Settlement Monument Records	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
7.	Groundwater Monitoring Records	☒ Readily available	☒ Up to date	☐ N/A
	Remarks: Reports on groundwater monitoring results are submitted to and kept by the State. Reports are also submitted to EPA.			
8.	Leachate Extraction Records	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			
9.	Discharge Compliance Records	☐ Readily available	☐ Up to date	☒ N/A
	Remarks:			

10. Daily Access/Security Logs ☐ Readily available ☐ Up to date ☒ N/A
Remarks:

IV. O&M Costs ☒ Applicable ☐ N/A

1. O&M Organization
☐ State in-house ☒ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Other: Contractor

2. O&M Cost Records

☐ Readily available ☐ Up to date ☐ Funding mechanism/agreement in place
Original O&M cost estimate: ☐ Breakdown attached

Total annual cost by year for review period if available

From (Date):	To (Date):	Total cost:	☐ Breakdown attached
From (Date):	To (Date):	Total cost:	☐ Breakdown attached
From (Date):	To (Date):	Total cost:	☐ Breakdown attached
From (Date):	To (Date):	Total cost:	☐ Breakdown attached
From (Date):	To (Date):	Total cost:	☐ Breakdown attached

Remarks: Mr. Valdez indicated that O&M costs are approximately $70,000 annually.

3. Unanticipated or Unusually High O&M Costs During Review Period ☐ N/A
Describe costs and reasons: The site is only undergoing long-term ground water monitoring. O&M costs related to the monitoring are not an issue at this site.

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

1. Fencing

1. Fencing damaged ☐ Location shown on site map ☒ Gates secured ☐ N/A
Remarks: Fencing only around each monitoring well. Two gates did not have locks.

2. Other Access Restrictions

1. Signs and other security measures ☐ Location shown on site map ☐ N/A
Remarks: Signs were posted on fences at each monitor well.

3. Institutional Controls

1. Implementation and enforcement
Site conditions imply ICs not properly implemented: ☐ Yes ☒ No ☐ N/A
Site conditions imply ICs not being fully enforced: ☐ Yes ☒ No ☐ N/A
Type of monitoring (e.g, self-reporting, drive by):
Frequency:
Responsible party/agency: TCEQ
Contact:
Name: Omar Valdez
Title: Project Manager
Date:
Phone Number: 512-239-6858
Reporting is up-to-date: ☒ Yes ☐ No ☐ N/A
Reports are verified by the lead agency: ☒ Yes ☐ No ☐ N/A
Specific requirements in deed or decision documents have been met: ☒ Yes ☐ No ☐ N/A
Violations have been reported: ☐ Yes ☐ No ☒ N/A
Other problems or suggestions: ☐ Additional report attached (if additional space required).

2. Adequacy ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks: The only controls required at the site are to restrict the use of the groundwater on-site until contaminant levels have attenuated below health based levels. There was no evidence suggesting that on-site ground water was being used.

4. General

1. Vandalism/trespassing ☐ Location shown on site map ☒ No vandalism evident
Remarks: There were no indications that the site monitor wells had been vandalized.

2. Land use changes onsite ☒ N/A
Remarks:

3. Land use changes offsite ☒ N/A
Remarks:

VI. GENERAL SITE CONDITIONS

1. Roads ☒ Applicable ☐ N/A

1. Roads damaged ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks: Site roads were in good condition.

2. Other Site Conditions

Remarks: Vegetation has been reestablished over the site. O&M reports document that vegetative growth around monitoring wells is removed occasionally to allow for access to the wells.

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

1. Landfill Surface

1. Settlement (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent: Depth:
Remarks:

2. Cracks ☐ Location shown on site map ☐ Cracking not evident
Lengths: Widths: Depths:
Remarks:

3. Erosion ☐ Location shown on site map ☐ Erosion not evident
Areal extent: Depth:
Remarks:

4. Holes ☐ Location shown on site map ☐ Holes not evident
Areal extent: Depth:
Remarks:

5. Vegetative Cover
☐ Cover properly established ☐ No signs of stress ☐ Grass ☐ Trees/Shrubs
Remarks:

6. Alternative Cover (armored rock, concrete, etc.) ☐ N/A
Remarks:

7. Bulges ☐ Location shown on site map ☐ Bulges not evident

Areal extent: Height: Remarks:	
8. Wet Areas/Water Damage ☐ Wet areas ☐ Ponding ☐ Seeps ☐ Soft subgrade Remarks:	☐ Wet areas/water damage not evident ☐ Location shown on site map Areal extent: ☐ Location shown on site map Areal extent: ☐ Location shown on site map Areal extent: ☐ Location shown on site map Areal extent:
9. Slope Instability Areal extent: Remarks:	☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
2. Benches (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)	☐ Applicable ☐ N/A
1. Flows Bypass Bench Remarks:	☐ Location shown on site map ☐ N/A or okay
2. Bench Breached Remarks:	☐ Location shown on site map ☐ N/A or okay
3. Bench Overtopped Remarks:	☐ Location shown on site map ☐ N/A or okay

3.	Letdown Channels	☐ Applicable ☐ N/A	
1.	Settlement Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ No evidence of settlement
2.	Material Degradation Material type: Remarks:	☐ Location shown on site map Areal extent:	☐ No evidence of degradation
3.	Erosion Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ No evidence of erosion
4.	Undercutting Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ No evidence of undercutting
5.	Obstructions Type: Areal extent: Remarks:	☐ Location shown on site map Height:	☐ N/A
6.	Excessive Vegetative Growth ☐ Evidence of excessive growth ☐ Location shown on site map Remarks:	☐ No evidence of excessive growth ☐ Vegetation in channels but does not obstruct flow Areal extent:	

4. Cover Penetrations ☐ Applicable ☐ N/A

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

2. Gas Monitoring Probes ☐ N/A
   ☐ Routinely sampled
   ☐ Properly secured/locked ☐ Functioning ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs O&M
   Remarks:

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

4. Leachate Extraction Wells ☐ N/A
   ☐ Routinely sampled
   ☐ Properly secured/locked ☐ Functioning ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs O&M
   Remarks:

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

5. Gas Collection and Treatment ☐ Applicable ☐ N/A

1. Gas Treatment Facilities ☐ N/A
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs O& M
   Remarks:

2. Gas Collection Wells, Manifolds and Piping ☐ Good condition ☐ Needs O& M Remarks:	☐ N/A
3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) ☐ Good condition ☐ Needs O& M Remarks:	☐ N/A
6. Cover Drainage Layer ☐ Applicable ☐ N/A	
1. Outlet Pipes Inspected ☐ Functioning Remarks:	☐ N/A
2. Outlet Rock Inspected ☐ Functioning Remarks:	☐ N/A
7. Detention/Sedimentation Ponds ☐ Applicable ☐ N/A	
1. Siltation ☐ Siltation evident Areal extent: Depth: Remarks:	☐ N/A
2. Erosion ☐ Erosion evident Areal extent: Depth: Remarks:	☐ N/A
3. Outlet Works ☐ Functioning Remarks:	☐ N/A
4. Dam ☐ Functioning Remarks:	☐ N/A

8.	Retaining Walls	☐ Applicable ☐ N/A	
1.	Deformations Horizontal displacement: Remarks:	☐ Location shown on site map Vertical displacement:	☐ Deformation not evident Rotational displacement:
2.	Degradation Remarks:	☐ Location shown on site map	☐ Degradation not evident
1.	Perimeter Ditches/Off-site discharge	☐ Applicable ☐ N/A	
1.	Siltation Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ Siltation not evident
2.	Vegetative Growth Areal extent: Remarks:	☐ Location shown on site map Type:	☐ Vegetation does not impede flow
3.	Erosion Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ Erosion not evident
4.	Discharge Structure ☐ Functioning Remarks:	☐ Location shown on site map ☐ Good Condition	☐ N/A
	VIII. VERTICAL BARRIER WALLS	☐ Applicable	☒ N/A
1.	Settlement Areal extent: Remarks:	☐ Location shown on site map Depth:	☐ Settlement not evident

2. Performance Monitoring ☐ N/A
☐ Performance not monitored
☐ Performance monitored Frequency:
☐ Evidence of breaching Head differential:
Remarks:

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

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

1. Pumps, Wellhead Plumbing, and Electrical ☐ N/A
☐ All required wells located ☐ Good condition ☐ Needs O& M
Remarks:

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ N/A
☐ System located ☐ Good condition ☐ Needs O& M
Remarks:

3. Spare Parts and Equipment ☐ N/A
☐ Readily available ☐ Good condition
☐ Requires Upgrade ☐ Needs to be provided
Remarks:

2. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. Collection Structures, Pumps, and Electrical ☐ N/A
☐ Good condition ☐ Needs O& M
Remarks:

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ N/A
☐ Good condition ☐ Needs O& M
Remarks: Not observed.

3. Spare Parts and Equipment ☐ N/A
☐ Readily available ☐ Good condition
☐ Requires Upgrade ☐ Needs to be provided
Remarks:

3. Treatment System ☐ Applicable ☒ N/A

1. Treatment Train (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers ☐ Filters (list type):
☐ Additive (list type, e.g., chelation agent, flocculent)
☐ Others (list):
☐ Good condition ☐ Needs O&M
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually (list volume):
☐ Quantity of surface water treated annually (list volume):
Remarks:

2. Electrical Enclosures and Panels (properly rated and functional) ☐ N/A
☐ Good condition ☐ Needs O& M
Remarks: See Hurricane Katrina Response Technical Memorandum, February 2006

3. Tanks, Vaults, Storage Vessels ☐ N/A
☐ Good condition ☐ Proper secondary containment ☐ Needs O&M
Remarks:

4. Discharge Structure and Appurtenances ☐ N/A
☐ Good condition ☐ Needs O& M
Remarks:

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

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

4. Monitored Natural Attenuation ☒ Applicable ☐ N/A

1. Monitoring Wells (natural attenuation remedy) ☐ N/A
☒ All required wells located ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled
☒ Good condition ☒ Needs O&M
Remarks: Minor O&M is needed to replace some damaged locks. Fencing and signage are in good condition at each well. All wells are secured by locks on the well covers and/or locks on the access gates. Locks were present at all monitor wells on either the access gate or the well cover. No monitor wells were unsecured. At several monitor wells, the dust caps on the well caps were not present.

5. Long Term Monitoring ☐ Applicable ☒ N/A

1. Monitoring Wells ☐ N/A
☐ All required wells located ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled
☐ Good condition ☐ Needs O&M
Remarks:

X. OTHER REMEDIES ☐ Applicable ☒ N/A

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

XI. OVERALL OBSERVATIONS

1. Implementation of the Remedy

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

The site is currently undergoing long-term monitoring of the shallow and deeper ground water zones to monitor contaminant levels in the ground water and to ensure that the contamination is not migrating off-site. Long-term monitoring will continue at the site until such time as the health-based levels established in the Record of Decision have been achieved for all contaminants in the ground water.

2. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. Based on the overall condition of the site, it appears that the O&M is adequate to maintain current and future protectiveness of the remedy at the Sikes Disposal Pit Superfund Site.
3. Early Indicators of Potential Remedy Failure
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. No unexpected changes in site conditions have occurred that resulted in higher frequency of monitoring or repairs. There are no indicators that the remedy is not protective of human health and the environment.
4. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy . The monitoring requirements have been optimized through a sampling and analysis program that targets the potential contaminants of concern. The O&M is currently conducted at the most optimum level to maintain remedy protectiveness and reduce costs.

Inspection Team Roster
Date of Site Inspection – August 10, 2006

Name	Organization	Title
Gary Miller	USEPA	Remedial Project Manager
Darren Davis	CH2M HILL	5-Year Review Assistant Project Manager
Victor Martinez	CH2M HILL	Staff Engineer

Attachment 4
Site Inspection Photographs

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Photo 1: View of chain link fence at monitor well GW-34 facing northwest. Warning sign is still posted and in good condition.	Filename: DSCN0047.JPG

Photo 2: View of monitor well GW-34. A dust cap is missing from the well cap.	Filename: DSCN0048.JPG

Photo 3: The lock is missing on the outer protective casing at GW-34.	Filename: DSCN0050.JPG

Photo 4: View of chain link fence at monitor well GW-18 facing northeast. Warning sign is still posted and in good condition.	Filename: DSCN0051.JPG

Photo 5: View of monitor well GW-18. The outer casing is properly secured.	Filename: DSCN0052.JPG

Photo 6: View inside outer protective casing at monitor well GW-18.	Filename: DSCN0053.JPG

Photo 7: View of chain link fence at monitor well GW-28 and GW-29 facing south. Warning sign is still posted and in good condition. Three drums are present inside the fence to the left.	Filename: DSCN0054.JPG

Photo 8: View inside outer protective casing at monitor well GW-29.	Filename: DSCN0055.JPG

Photo 9: View of monitor well GW-29. The lock on the outer casing does not work.	Filename: DSCN0057.JPG

Photo 10: View of monitor well GW-28. The outer casing is properly secured.	Filename: DSCN0058.JPG

Photo 11: View inside outer protective casing at monitor well GW-28. A dust cap is missing from the well cap.	Filename: DSCN0059.JPG

Photo 12: View of chain link fence at monitor well GW-32 and GW-33 facing northwest. Warning sign is still posted (it is behind the tree) and in good condition.	Filename: DSCN0060.JPG

Photo 13: View of monitor well GW-32. The outer casing is properly secured.	Filename: DSCN0061.JPG

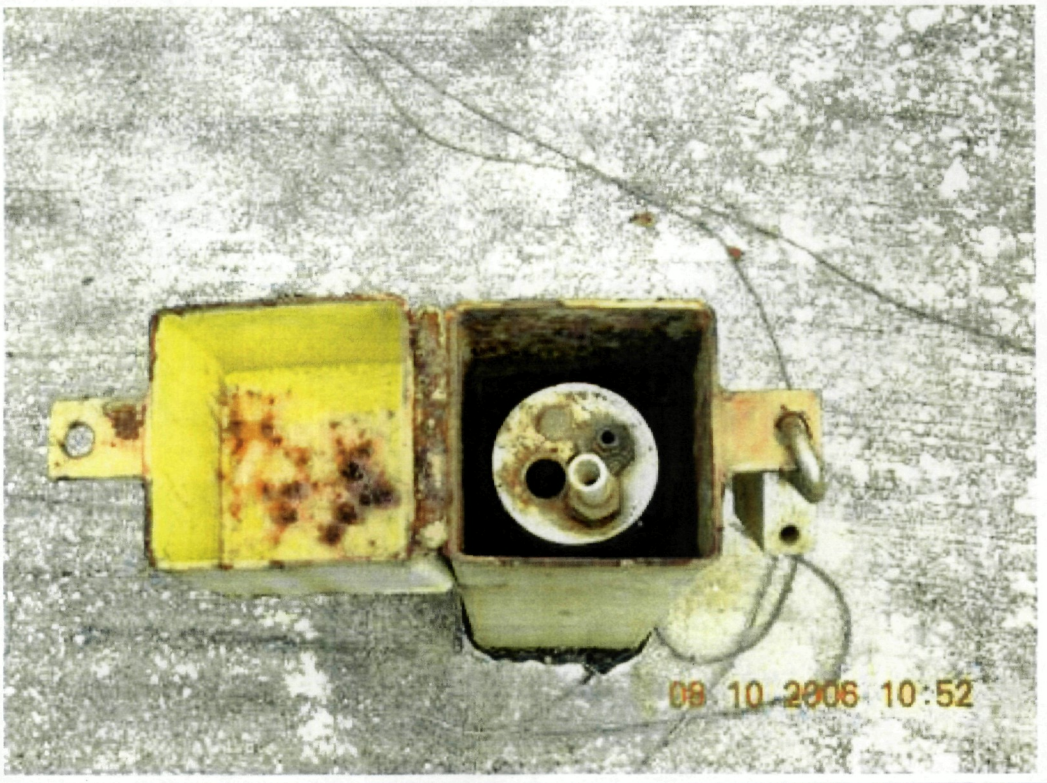

Photo 14: View inside outer protective casing at monitor well GW-32. A dust cap is missing from the well cap.	Filename: DSCN0062.JPG

Photo 15: . View of monitor well GW-33. The outer casing is properly secured.	Filename: DSCN0063.JPG

Photo 16: View inside outer protective casing at monitor well GW-33.	Filename: DSCN0064.JPG

Photo 17: View of the site facing south near GW-32 & 33.	Filename: DSCN0065.JPG

Photo 18: View of the site facing west near GW-32 & 33.	Filename: DSCN0066.JPG

Photo 19: View of monitor well GW-35. Chain link fence is properly secured. A single drum is stored inside the fence.	Filename: DSCN0067.JPG

Photo 20: View of monitor well GW-35. The lock on the outer protective casing is broken at GW-35.	Filename: DSCN0068.JPG

Photo 21: View inside outer protective casing at monitor well GW-35.	Filename: DSCN0069.JPG

Photo 22: View of the site facing southeast near GW-21& 27.	Filename: DSCN0070.JPG

Photo 23: View of chain link fence at monitor wells GW-21 and GW-27 facing west. Warning signs are still posted and in good condition on both fences.	Filename: DSCN0071.JPG

Photo 24: Broken lock on chain link fence at GW-27	Filename: DSCN0072.JPG

Photo 25: View of monitor well GW-27. The outer casing is properly secured.	Filename: DSCN0073.JPG

Photo 26: View inside outer protective casing at monitor well GW-27. A dust cap is missing from the well cap.	Filename: DSCN0074.JPG

Photo 27: View of monitor well GW-21. The outer casing is properly secured.	Filename: DSCN0075.JPG

Photo 28: View inside outer protective casing at monitor well GW-21.	Filename: DSCN0076.JPG

Photo 29: View of chain link fence at monitor well GW-07.	Filename: DSCN0077.JPG

Photo 30: View inside outer protective casing at monitor well GW-07. A dust cap is missing from the well cap.	Filename: DSCN0078.JPG

Photo 31: Protective casing at monitor well GW-21. The outer casing is properly secured.	Filename: DSCN0079.JPG

Photo 32: Missing gate lock at monitor well GW-07.	Filename: DSCN0080.JPG

Photo 33: View of chain link fence at monitor well GW-23.	Filename: DSCN0081.JPG

Photo 34: Warning sign is still posted and in good condition at monitor well GW-07.	Filename: DSCN0082.JPG

Photo 35: View of outer protecting casing at GW-23. The casing does not have a securing mechanism.	Filename: DSCN0083.JPG

Photo 36: View inside outer protective casing at monitor well GW-23. A dust cap is missing from the well cap.	Filename: DSCN0084.JPG

Photo 37: View of chain link fence at monitor wells SI-116 and INT-116.	Filename DSCN0085.JPG

Photo 38: View of monitor well SI-116. The outer casing is properly secured.	Filename: DSCN0086.JPG

Photo 39: View of monitor well INT-116. The outer casing is properly secured.	Filename: DSCN0087.JPG

Photo 40: View of chain link fence at monitor well GW-19.	Filename: DSCN0088.JPG

Photo 41: View of protective casing at monitor well GW-19.	Filename: DSCN0089.JPG

Photo 42: View of broken lock on outer protective casing at monitor well GW-19.	Filename: DSCN009.JPG

Photo 43: View inside outer protective casing at monitor well GW-19.	Filename: DSCN0091.JPG

Photo 44: View of chain link fence at monitor well GW-25. Warning sign is visible and in good condition.	Filename: DSCN0092.JPG

Photo 45: View inside outer protective casing at monitor well GW-25. A dust cap is missing from the well cap.	Filename: DSCN0093.JPG

Photo 46: View of chain link fence at monitor well GW-30. Warning signs are posted and in good condition.	Filename: DSCN0094.JPG

Photo 47: View inside outer protective casing at monitor well GW-30. A dust cap is missing from the well cap.	Filename: DSCN0095.JPG

Photo 48: View of site facing northeast near monitor well GW-30..	Filename: DSCN0096.JPG

Photo 49: View of west pond facing southwest at monitor well GW-30.	Filename: DSCN0097.JPG

Photo 50: View of east pond facing southeast near monitor well GW-30.	Filename: DSCN0098.JPG

Photo 51: View of chain link fence at monitor well GW-15.	Filename: DSCN0099.JPG

Photo 52: View of chain link fence at monitor well GW-31.	Filename: DSCN0100.JPG

Photo 53: Warning signs are posted and in good condition at monitor wells GW-15 and GW-31.	Filename: DSCN0101.JPG

Photo 54: View inside outer protective casing at monitor well GW-31.	Filename: DSCN0102.JPG

Photo 55: View inside outer protective casing at monitor well GW-15. A dust cap is missing from the well cap.	Filename: DSCN0103.JPG

Attachment 5

Notices to the Public Regarding the Five-Year Review

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Sikes Disposal Pits Superfund Site
U.S. EPA Region 6
Begins Third Five-Year Review of Site Remedy
August 2006

The U.S. Environmental Protection Agency (EPA) has begun the third five-year review for the Sikes Disposal Pits Superfund site located in Crosby, Harris County, Texas. This review will determine whether the remedy at the Site remains protective of human health and the environment. The excavation and incineration of contaminated materials, and soil restoration, were completed in June 1994. However, the ground water remains contaminated and the sampling program will continue until contaminant concentrations are below the health based criteria. The second five-year review for the Site was completed in September 2001.

The 185-acre Sikes Disposal Pits Site is located about two miles southwest of the City of Crosby, immediately north of old U.S. Highway 90, and roughly 20 miles northeast of Houston. The Site was used as a waste depository from the early 1960s to 1967. During this period, a variety of chemical wastes from area petrochemical industries were deposited on-site in several sand pits.

The third five-year review is scheduled for completion in September 2006. Results of the five-year review will be made available to the public at the following information repository:

Crosby Public Library
35 Hare Road
Crosby, Texas 77532
(281) 328-3535

For more information, please contact Gary Miller, U.S. EPA Region 6 Remedial Project manager, at 1-800-533-3508 (toll-free) or 214-665-8318 or Phyllis June Hoey, Community Involvement Coordinator, S.E.E. at 1-800-533-3508 (toll-free) or 214-665-8522.

CONFIRMED PUBLICATION in the Crosby Courier Thursday, August 17, 2006
CH2M HILL/Bernard Hodes 972-980-2170

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Sikes Disposal Pits Superfund Site
U.S. EPA Region 6
Completes Third Five-Year Review of Site Remedy
October 2006

The U.S. Environmental Protection Agency (EPA) has completed the third five-year review for the Sikes Disposal Pits Superfund site located in Crosby, Harris County, Texas. The 185-acre Sikes Disposal Pits Site is located about two miles southwest of the City of Crosby, immediately north of old U.S. Highway 90, and roughly 20 miles northeast of Houston. The Site was used as a waste depository from the early 1960s to 1967. During this period, a variety of chemical wastes from area petrochemical industries were deposited on-site in several sand pits.

Results of the Five-year Review

The five-year review documents that actions performed to date at the Sikes Disposal Pits site continue to be protective of human health and the environment. Based on the results of this review, sampling of ground water and surface water will continue. Other follow-up actions are described in the Five-year Review Report, which is available to the public at the following information repository:

Crosby Public Library
35 Hare Road
Crosby, Texas 77532
281.328.3535

The library will be closed for approximately six weeks for renovations. Please contact Gary Miller at the telephone numbers below for any questions regarding these site documents.

For more information, please contact Gary Miller, U.S. EPA Region 6 Remedial Project Manager, at 1.800.533.3508 (toll-free) or 214.665.8318 or Phyllis June Hoey, Community Involvement Coordinator, S.E.E. at 1.800.533.3508 (toll-free) or 214.665.8522.

For publication in the Crosby Courier
CH2M HILL/Bernard Hodes 972-980-2170

Attachment 6
Deed Notices

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V357381

DEED NOTICE

10/12/01 300631572 V357381 $23.00

STATE OF TEXAS
COUNTY OF HARRIS

This Notice is filed pursuant to the rules of the Texas Natural Resource Conservation Commission (TNRCC) and affects the real property described in Exhibit A (Property).

This Notice is required for the following reasons:

As identified in reports on file with the TNRCC concerning the Sikes Disposal Pits Superfund Site, the shallow groundwater beneath the Property contains certain chemicals of concern that exceed the TNRCC-approved protective concentration levels. Use of this shallow groundwater for any purpose is prohibited unless otherwise approved in writing by the TNRCC or until such time as all the chemicals of concern no longer exceed their respective protective concentration levels. The shallow groundwater is continuing to be monitored in accordance with specific requirements of a TNRCC-approved plan unless or until the TNRCC makes any modifications to the plan.

For additional information, contact:

TNRCC
Central Records
12100 Park 35 Circle, Building D
Austin, Texas 78753

Mail: TNRCC - MC 199
P O Box 13087
Austin, Texas 78711-3087

54-88-1117

As of the date of this Notice, the record owners of fee title to the Property are M. W. McClendon with an address of P.O. Box 66160, Houston, Texas 77266.

This Notice may be rendered of no further force or effect only by a release executed by the TNRCC or its successor agencies and filed in the same Real Property Records as those in which this Notice is filed.

Executed this 25th day of September 2001.

By: David L. Davis
David L. Davis
Assistant Director, Remediation Division
Texas Natural Resource Conservation Commission

STATE OF TEXAS
COUNTY OF TRAVIS

BEFORE ME, on this the 25th day of September 2001, personally appeared David L. Davis, Assistant Director of the of the Remediation Division of the Texas Natural Resource Conservation Commission, known to me to be the person whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 25th day of September 2001.

Barbara Ann Daywood
Notary Public in and for the State of Texas

BARBARA ANN DAYWOOD
MY COMMISSION EXPIRES
AUGUST 08, 2005

County of Travis

My Commission Expires: 8-8-05

544-88-1118

EXHIBIT A

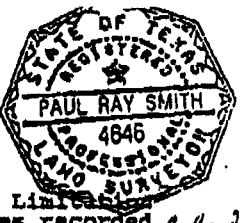
Property Description

(Tract 5)

FILE FOR RECORD
8:00 AM

OCT 12 2001

County Clerk, Harris County, Texas

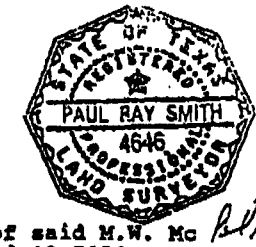


north line of Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, said point also being the POINT OF BEGINNING;

THENCE S 87-38-56 W, with the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, the north line of the Reuben White Survey, Abstract A-84, the south line of said M.W. Mc Clendon 19.9997 acre tract, the north line of said Sirocka 6.7198 acre tract, a distance of 1068.10 feet passing a 5/8" iron rod set in concrete (X = 3240024.87, Y = 764709.07) marking the southeast corner of a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, a distance of 1092.87 feet passing a 5/8" iron rod set in concrete (X = 3240000.13, Y = 764708.06) marking the northwest corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed records) recorded in Volume 760, Page 61 of the Harris County Deed Records, and the northeast corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, in all a distance of 1302.32 feet to a 5/8" iron rod set in concrete (X = 3239790.85, Y = 764699.47) marking the southeast corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, the southwest corner of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, also being in the north line of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, the centerline of a Southwestern Bell Telephone Easement (20.00 foot width) recorded in Volume 1377, Page 580 and also Volume 1398, Pages 633 and 634 of the Harris County Deed Records;

THENCE N 2-21-04 W, with the west line of said M.W. Mc Clendon 19.9997 acre tract, the east line of said 19.5090 acre tract, the west line of said appurtenant easement, a distance of 479.96 feet to a 5/8" iron rod set in concrete (X = 3239771.16, Y = 765179.02) marking the westerly corner of the M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code 176-90-1631 of the Harris County Official Public Records of Real Property, the west corner of a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, and the easterly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the

544-88-1120



Harris County Deed Records;

THENCE N 57-09-41 W, with the west line of said M.W. Mc Clendon 19.9997 acre tract, east line of said 19.5090 acre tract, a distance of 612.66 feet to a 5/8" iron rod set in concrete (X = 3239256.41, Y = 765511.25) marking the northwest corner of the M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, the northeast corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, the southwest corner of the William R. Parker Jr. 85.1628 acre tract recorded under File No. J-305647, Film Code No. 069-89-0811, and File No. J-226172, Film Code 064-85-0167 of the Harris County Official Public Records of Real Property, said point also being in the easterly right of way line of T. & N.O. Railroad (Southern Pacific Railroad), the north line of the Humphrey Jackson Labor, Abstract A-84, and the south line of the Humphrey Jackson League;

THENCE S 81-49-24 E, with the north line of said M.W. Mc Clendon 19.9997 acre tract, the south line of the said William R. Parker Jr. 85.1628 acre tract, a distance of 509.27 feet passing a 5/8" iron rod set in concrete (X = 3239760.50, Y = 765438.82) marking the northwest corner of a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, a distance of 570.29 feet passing a 5/8" iron rod set in concrete (X = 3239820.90, Y = 765430.14) marking the northeast corner of a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, a distance of 898.85 feet passing a 5/8" iron rod set in concrete (X = 3240146.12, Y = 765383.41) marking the centerline of a Southwestern Bell Telephone easement (20.00 foot width) recorded in Volume 1398, Page 633, and Volume 2846, Page 476 of the Harris County Deed Records, in all a distance of 1833.89 feet to a 5/8" iron rod set in concrete (X = 3241071.65, Y = 765250.43) marking the northeast corner of the M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, the southeast corner of the William R. Parker Jr. 85.1628 acre tract recorded under File No. J-305647, Film Code No. 069-89-0811, and File No. J-226172, Film Code No. 064-85-0167 of the Harris County Official Public Records of Real Property, said point also being in the west line of the T.A. Ramsey & L.L. Anderson 41.6778 acre tract recorded in Volume 4968, Page 298 of the Harris County Deed Records;

THENCE S 2-21-04 E, with the east line of the said M.W. Mc Clendon 19.9997 acre tract, and the west line of the said

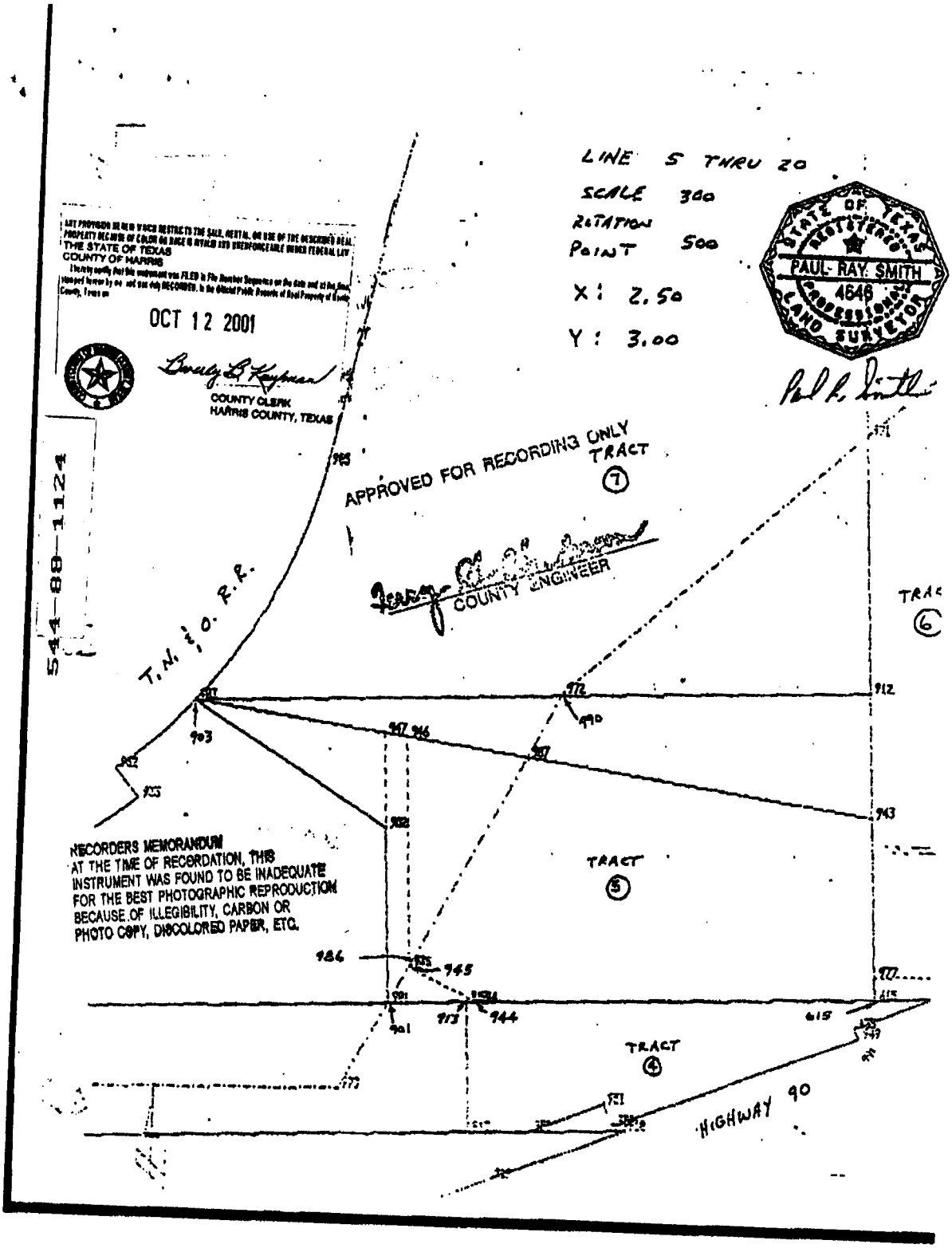
54-88-1121

T.A. Ramsey & L.L. Anderson 41.6778 acre tract, a distance of 437.96 feet passing a 5/8" iron rod set in concrete (X = 3241089.61, Y = 764812.83) marking the northwest corner of a road right of way (60.00 foot width) recorded under File No. G-384414, Film Code No. 148-95-1997 of the Harris County Official Public Records of Real Property, in all a distance of 497.96 feet to a 5/8" iron rod set in concrete (X = 3241092.08, Y = 764752.89) to the POINT OF BEGINNING, and containing a computed area of 19.9997 acres (871,186 square feet).

NOTE 1: M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property is subject to a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, and a Southwestern Bell Telephone easement (20.00 foot width) recorded in Volume 1398, Page 633, and Volume 2846, Page 476 of the Harris County Deed Records.

Note 2: All reference distances made to State Highway 90 such as the centerline station, offset lt., and width are actual surface distances shown on State Highway 90 Right of Way Map dated July 1929. All distances shown in parenthesis are also surface distances.

54-88-1122


LINE 5 THRU 20
SCALE 300
ROTATION
POINT 500
X: 2.50
Y: 3.00
STATE OF TEXAS
REGISTERED
PAUL RAY SMITH
4646
PROFESSIONAL
LAND SURVEYOR
THE STATE OF TEXAS
COUNTY OF HARRIS
OCT 12 2001
COUNTY CLERK
HARRIS COUNTY, TEXAS
APPROVED FOR RECORDING ONLY
TRACT 7
COUNTY ENGINEER
T.N. & O. R.R.
TRACT 6
TRACT 5
TRACT 4
HIGHWAY 90
RECORDERS MEMORANDUM
AT THE TIME OF RECORDATION, THIS INSTRUMENT WAS FOUND TO BE INADEQUATE FOR THE BEST PHOTOGRAPHIC REPRODUCTION BECAUSE OF ILLEGIBILITY, CARBON OR PHOTO COPY, DISCOLORED PAPER, ETC.
903
912
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54-88-1124

V357383

DEED NOTICE

STATE OF TEXAS
COUNTY OF HARRIS

10/12/01 300631574 V357383 $47.00

This Notice is filed pursuant to the rules of the Texas Natural Resource Conservation Commission (TNRCC) and affects the real property described in Exhibit A (Property).

This Notice is required for the following reasons:

As identified in reports on file with the TNRCC concerning the Sikes Disposal Pits Superfund Site, the shallow groundwater beneath the Property contains certain chemicals of concern that exceed the TNRCC-approved protective concentration levels. Use of this shallow groundwater for any purpose is prohibited unless otherwise approved in writing by the TNRCC or until such time as all the chemicals of concern no longer exceed their respective protective concentration levels. The shallow groundwater is continuing to be monitored in accordance with specific requirements of a TNRCC-approved plan unless or until the TNRCC makes any modifications to the plan.

For additional information, contact:

TNRCC
Central Records
12100 Park 35 Circle, Building D
Austin, Texas 78753

Mail: TNRCC - MC 199
P O Box 13087
Austin, Texas 78711-3087

As of the date of this Notice, the record owners of fee title to the Property are Richard and Mabel Sikes with an address of 709 Sheldon Road, Houston, Texas 77530.

This Notice may be rendered of no further force or effect only by a release executed by the TNRCC or its successor agencies and filed in the same Real Property Records as those in which this Notice is filed.

Executed this 25th day of September 2001.

By: _____
David L. Davis
Assistant Director, Remediation Division
Texas Natural Resource Conservation Commission

544-88-1137

STATE OF TEXAS
COUNTY OF TRAVIS

BEFORE ME, on this the 25th day of September 2001, personally appeared David L. Davis, Assistant Director of the of the Remediation Division of the Texas Natural Resource Conservation Commission, known to me to be the person whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 25th day of September 2001.

Barbara Ann Daywood
Notary Public in and for the State of Texas

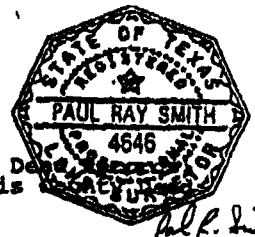
BARBARA ANN DAYWOOD
MY COMMISSION EXPIRES
AUGUST 08, 2005

County of Travis

My Commission Expires: 8-8-05

S#4-88-1139

TRACT 3 = 19.5090 AC.



in Volume 3085, Page 643 of the Harris County Deed Records recorded in Volume 760, Page 61 of the Harris [illegible] Records;

THENCE S 87-38-56 W, with the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, the north line of the Reuben White Survey, Abstract A-84, the south line of said M.W. Mc Clendon 19.9997 acre tract, the north line of said Sirocka 6.7198 acre tract, a distance of 1092.87 feet to a 5/8" iron rod set in concrete (X = 3240000.13, Y = 764708.06) marking the northwest corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed records) recorded in Volume 760, Page 61 of the Harris County Deed Records, and the northeast corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, and being in the south line of the M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property;

THENCE S 87-38-56 W, with the south line of the Humphrey Jackson Labor, Abstract A-84, the south line of the Humphrey Jackson Survey, Abstract A-84, the north line of the Reuben White Survey, Abstract A-37, the north line of a 17.5362 acre tract conveyed to Jim and Edna Love, the south line of M.W. Mc Clendon 19.9997 acre tract, a distance of 208.45 feet to a 5/8" iron rod set in concrete (X = 3239790.85, Y = 764699.47) marking the southeast corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, the southwest corner of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, also being in the north line of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, said point also being located in the centerline of a Southwestern Bell Telephone Easement (20.00 foot width) recorded in Volume 1377, Page 580 and also Volume 1398, Pages 633 and 634 of the Harris County Deed Records, said point also being the POINT OF BEGINNING:

THENCE S 87-38-56 W, with the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, the north line of the Reuben White Survey, Abstract A-84, the south line of said 19.5090 acre tract, and the north line of said 17.5362 acre tract, a distance of 1781.24 feet passing a 5/8" iron rod set in concrete (X = 3238011.11, Y = 764626.40) marking the south line of a 19.5090 acre tract conveyed to Richard O. and Mabel

544-88-1141

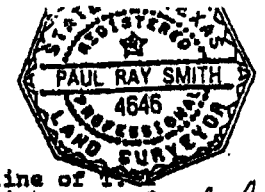
Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, and the north line of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, in all a distance of 1930.33 feet to a point for corner (X = 3237862.14, Y = 764620.28) marking the southwest corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, and the northwest corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property;

THENCE N 2-21-04 W, with the west line of said 19.5090 acre tract, a distance of 151.70 feet to a point for corner (X = 3237855.92, Y = 764771.85) marking the northwest corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, said point also being in the southerly right of way line of the T.& N.O. Railroad (Southern Pacific Railroad);

THENCE N 74-53-12 E, with the northerly line of said 19.5090 acre tract, and the southerly right of way line of said T. & N.O. Railroad (Southern Pacific Railroad) a distance of 113.86 feet passing a 5/8" iron rod set in concrete (X = 3237965.84, Y = 764801.54) marking the north line of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes recorded in Volume 1595, Page 227 of the Harris County Deed Records, and the southerly right of way line of T. & N.O. Railroad (Southern Pacific Railroad), in all a distance of 725.13 feet to a 5/8" iron rod set in concrete (X = 3238555.97, Y = 764960.91) marking the northerly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, said point also being in the southerly right of way line of T. & N.O. Railroad (Southern Pacific Railroad), said point also being the Point Of Curvature of a tangent curve in a northeasterly direction;

THENCE with the southeasterly right of way line of T. & N.O. Railroad (Southern Pacific Railroad), and the northwesterly line of said 19.5090 acre tract continuing along a tangent curve to the left in a northeasterly direction (Central Angle = 22-52-50; Radius = 1575.26 feet; Chord = N 63-26-47 E, 624.89 feet) an arc distance of 629.06 feet to a 5/8" iron rod set in concrete (X = 3239114.94, Y = 765240.26) marking the northerly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes recorded in Volume 1595, Page 227 of the Harris County Deed Records, said point also being in the southeasterly right of way line of T. & N.O. Railroad (Southern Pacific Railroad);

THENCE N 37-59-38 W, with the westerly line of said 19.5090



acre tract, and the Northeasterly right of way line of T. & N.O. Railroad (Southern Pacific Railroad), a distance of 99.99 feet to a 5/8" iron rod set in concrete (X = 3239053.39, Y = 765319.06) marking a northwesterly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes recorded in Volume 1595, Page 227 of the Harris County Deed Records, and the southeasterly right of way line of T. & N.O. Railroad (Southern Pacific Railroad);

THENCE with the southeasterly right of way line of the T. & N.O. Railroad (Southern Pacific Railroad), and the northwesterly line of said 19.5090 acre tract continuing along a tangent curve to the left in a northeasterly direction (Central Angle = 10-52-25; Radius = 1475.27 feet; Chord = N 46-34-10 E, 279.55 feet) an arc distance of 279.97 feet to a 5/8" iron rod set in concrete (X = 3239256.41, Y = 765511.25) marking a northerly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes recorded in Volume 1595, Page 227 of the Harris County Deed Records, said point also marking the northwesterly corner of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, and the southwest corner of the William R. Parker Jr. 85.1628 acre tract recorded under File No. T-305647, Film Code No. 069-89-0811 of the Harris County Official Public Records of Real Property, said point also being in the southeasterly right of way line of the T. & N.O. Railroad (Southern Pacific Railroad), the north line of the Humphrey Jackson Labor, Abstract A-37, and the south line of the Humphrey Jackson League, Abstract A-37;

THENCE S 57-09-41 E, with the easterly line of said 19.5090 acre tract, and the westerly line of said M.W. Mc Clendon 19.9997 acre tract, a distance of 612.66 feet to a 5/8" iron rod set in concrete (X = 3239771.16, Y = 765179.02) marking the easterly corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes recorded in Volume 1595, Page 227 of the Harris County Deed Records, and the westerly corner of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property;

THENCE S 2-21-04 E, with the east line of said 19.5090 acre tract, and the west line of said M.W. Mc Clendon 19.9997 acre tract, a distance of 479.96 feet to the POINT OF BEGINNING, and containing a computed area of 19.5090 acres (849,814 square feet).

Note 1: 19.5090 acre tract is shown on IT/DMC Plat 1002-0021 dated 4-15-91.

Note 2: All reference distances made to State Highway 90, such as centerline station, offset lt., and width are actual surface distances shown on State Highway 90 Right of Way Map

Coordinate File Name: SDP-C3.CRD Lowest pt #: 1 Highest pt #: 2020
Job # : 500800
Description: DIKES DISPOSAL PITS COORDINATE FILE FOR BOUNDARY SURVEY
# of chars. in point descr.: 10

Paul Little

FROM	TYPE	BEARING	DISTANCE	TO	NORTHING	EASTING
START				948	764758.719	3241245.453
948	INV	S 87-49-24 W	155.403	615	764752.890	3241092.075
615	S.S.	S 87-38-56 W	1068.102	944	764709.074	3240024.873
615	S.S.	S 87-38-56 W	1092.868	913	764708.056	3240000.128
615	INV	S 87-38-56 W	1302.321	901	764699.485	3239790.851
START				901	764699.485	3239790.851
901	S.S.	S 87-38-56 W	1781.236	984	764628.395	3238011.114
901	INV	S 87-38-56 W	1830.331	914	764620.279	3237862.144
914	INV	N 2-21-04 W	151.699	935	764771.850	3237865.921
935	S.S.	N 74-53-12 E	113.856	986	764801.536	3237985.839
935	INV	N 74-53-12 E	726.128	934	764960.913	3238555.969
RADIUS POINT				904	766481.684	3238145.253
DELTA:- 22-52-50 R= 1575.257 A= 629.061 C= 624.889 T= 318.778						
P.C. - P.T.						
934	INV	N 63-26-47 E	624.889	933	765240.260	3239114.943
933	INV	N 37-59-38 W	99.991	932	765319.080	3239053.391
RADIUS POINT				904	766481.684	3238145.253
DELTA:- 10-52-25 R= 1475.266 A= 279.974 C= 279.554 T= 140.409						
P.C. - P.T.						
932	INV	N 48-34-10 E	279.554	903	765511.247	3239256.406
903	INV	S 67-09-41 E	612.659	902	765179.017	3239771.162
902	INV	S 2-21-04 E	478.956	901	764699.485	3239790.851
				901	764699.485	3239790.851
		N 0-00-00 E	0.000	CLOSING LINE		
			4908.800	DISTANCE TRAVERSED		

>100000000 PRECISION
AREA: 849813.69 Square Feet 19.5090 Acres

54-88-1145

CAUTION: PROTECTION IS AFFORDED ONLY UNDER THE TERMS OF THE PROPOSED POLICY. STEWART TITLE GUARANTY COMPANY ASSUMES NO LIABILITY FOR ERRORS OR OMISSIONS IN THIS REPORT OR FOR VERBAL STATEMENT. The issuance of a preliminary report merely for use of Stewart Title Guaranty Company only, to determine whether a title insurance policy will be issued. If a policy is furnished to the parties to the transaction it is to facilitate preparation of the instruments, to point out curative requirements, if any, and to show the results of the Company's title search upon which the Company may rely. None of the information contained herein, or the absence of other information, constitutes representations to any party, other than the Company, as to the status of title. If a title defect or encumbrance other than is not disclosed herein, the Company shall not be liable by reason of furnishing this report or for any verbal information related thereto. The Company shall not be liable for any title defect unless a title insurance policy is hereafter issued insuring against such defect, and the applicable premium paid therefor, and the Company's liability shall exist only to the terms of its policy (as promulgated by the State Board of Insurance) and as measured and limited thereby.

544-88-1147

TITLE REPORT 500-16-2649

EXAMINER:

GF NO. 881133790

DATE: June 13, 1988 @ 8:00 A.M. CLOSER: RON ORR

APPLICANT: TSA

Examination from: Records of STEWART TITLE COMPANY
Subject to: Claims of persons in possession, discrepancies in area and boundaries, unpaid bills for labor or material in connection with repairs or new improvements, unpaid taxes.

TITLE GOOD IN: RICHARD G. SIKES and wife, MABEL SIKES by virtue of Deed from ELIZABETH SIMKINS MASTERSON, et al dated March 1, 1947 recorded in Volume 1595 Page 227 of the Deed Records of Harris County, Texas.

CORRECT DESCRIPTION OF PROPERTY:

All that tract of land out of the HUMPHREY JACKSON LEAGUE AND LABOR containing Twenty (20) acres and described in Exhibit "A" attached.

SUBJECT TO:

RESTRICTIONS:

None of Record.

EASEMENTS AND RIGHTS OF WAY:

Subject to any easements, rights-of-way, roadways, encroachments, etc., which a survey or physical inspection of the premises might disclose.

MINERALS AND/OR ROYALTIES:

All the oil, gas and other minerals, the royalties, bonuses, rentals and all other rights in connection with same all of which are expressly excepted herefrom and not insured hereunder, as same are set forth in instrument recorded in Volume 1595, Page 227 of the Deed Records of Harris County, Texas.

OTHER EXCEPTIONS:

Subject to the terms, conditions and stipulations of any and all Lease Agreements, amendments and supplements thereto, existing with the tenants in possession, whether written or oral and whether recorded or unrecorded.

Subject property is subject to overflow from the Flood Waters of the San Jacinto River after extra heavy upstream rains.

Continued on next page

GF No. 881133790
TITLE REPORT CONTINUATION

OTHER EXCEPTIONS CONTINUED:
Subject to the rights for Lateral Support of any and all easements, right of way, pipelines, roadways that cross subject property whether written or oral and whether recorded or unrecorded.

The company by this report does not insure against the exercise of power of competent governmental authority to declare the above described property to be contaminated with hazardous and/or toxic materials.

LIENS:

Note: We find no outstanding liens of record affecting the subject property. Inquiry should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any security interest claim in the subject property.

MISCELLANEOUS:

We are to be furnished with a survey, complete with the correct metes and bounds description of the subject property made by a licensed Public Surveyor of the State of Texas, suitable to this Title Company. When same is submitted, it is to be returned to Examiner for inspection and approval.

The property covered herein is subject to the terms, conditions, provisions and stipulations of Ordinance #85-1878 of the City of Houston enacted October 23, 1985 pertaining to the platting and replatting of real property and the establishment of building set back lines within such boundaries. This is pointed out for information and is not intended to waive the provisions of any title policy issued which excludes from coverage loss or damage as a consequence of the exercise and enforcement or attempted enforcement of governmental police powers over land described therein.

There is pending in the 125th Judicial District Court of Harris County, Texas, Cause No. 8624307 action styled Richard Sikes vs. Jim Love Prior to closing, require said suit be released with prejudice.

Exhibit "A"

The land above referred to is situated in Harris County, Texas, and is described by metes and bounds as follows, to-wit:

Twenty (20) acres of land, more or less, out of the Humphrey Jackson League and Labor, in Harris County, Texas, situated on the east bank of San Jacinto River, about eighteen miles northeast of the City of Houston, and described by metes and bounds as follows:

Beginning at a cedar stump and pipe on the east bank of the San Jacinto River (from which a magnolia tree marked "X" bears N. 58½ deg. E. 33 ft. and a magnolia tree marked "X" bears S. 62½ deg. E. 60 ft.) the south west corner of the Humphrey Jackson Labor;

Thence North along the east bank of the San Jacinto River about 240 ft. to the south right of way line of the Texas and New Orleans Railroad, 200 ft. south of the center of the track of said railroad for the north west corner;

Thence following the south right of way line of the said railroad in an east and north direction, 1210 ft. parallel and 200 ft. south of the center of said railroad track, for corner;

Thence North and west along a jog in said right of way 100 ft. to a point 100 ft. from the center of the track of said railroad, for a corner;

Thence east and north 280 ft. along the south right of way line of said railroad, parallel and 100 ft. from the center of the track of said railroad, to a point, being the intersection of the north line of the Humphrey Jackson Labor, and the south right of way line of the Texas and New Orleans Railroad, for corner;

Thence S. 46 deg. E. 500 ft. for a corner; Thence S. 480 ft. to the south line of the Humphrey Jackson Labor for a corner;

Thence W. 1862.4 ft. to the place of beginning, containing twenty (20) acres of land, more or less, including a lake, known as Round or Tank Lake, and being the same property conveyed by H. Masterson to W. A. Childress, et al, Trustees of the Houston Local Council Boy Scouts of America, the use of which land has been abandoned by said Houston Local Council Boy Scouts of America and was reconveyed by the Trustees thereof to the Estate of H. Masterson, deceased;

544-88-1151

TEXAS WATER COMMISSION
Sikes Disposal Pits
Remedial Action
Metes And Bounds Description
6.7198 Acres
(292,713 square feet)
Reuben White Survey, A-84
Harris County, Texas

A tract of land being 6.7198 acres (292,713 square feet) out of the Reuben White Survey, Abstract A-84, Harris County, Texas and being all of that 6.7198 acre Sirocka tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, said tract being more particulary described by metes and bounds as follows with all bearings and coordinates referenced to the Texas Coordinate System (N.A.D. 1927) South Central Zone (all distances and acreages herein recited are grid and may be converted to surface by multiplying by the combined factor 1.00009):

BEGINNING at a 5/8" iron rod in concrete (X = 3241245.45, Y = 764758.72) set in the northerly right of way line of State Highway 90 (canterline station = 36+23.43, offset lt. = 110.00 feet) said point marking the northeast corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, the southerly corner of the T.A. Ramsey & L.L. Anderson 41.6778 acre tract recorded in Volume 4968, Page 298 of the Harris County Deed Records, said corner also being located in the in the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, and the north line of the Reuben White Survey, Abstract A-84;

THENCE S 67-00-43 W, with the northerly right of way line of State Highway 90 (offset lt. = 110.00 feet) and the southerly line of said Sirocka 6.7198 acre tract, a distance of 223.41 feet to a 5/8" iron rod set in concrete (X = 3241039.788, Y = 764671.47) marking the southerly corner of Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volumes 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris county Deed Records, said point also being in the northerly right of way line of State Highway 90 (centerline station = 36+23.43, offset lt. = 110.00 feet);

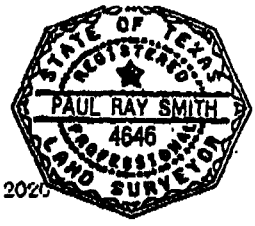
THENCE S 22-59-17 E, with the northerly right of way line of State Highway 90, and the southerly line of said Sirocka

southwest corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, and marking the southeasterly corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, said point also being in the northerly line of a 20.2137 acre tract conveyed to Jim Love and recorded under File No. L-283655, Film Code No. 189-30-1254 of the Harris County Official Public Records of Real Property;

THENCE N 2-21-04 W, with the west line of said Sirocka 6.7198 acre tract and the east line of said 17.5362 acre tract, a distance of 363.89 feet to a 5/8 iron rod set in concrete (X = 3240000.13, Y = 764708.06) marking the northwest corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, also marking the northeast corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, said point being in the south line of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, the north line of the Reuben White Survey, Abstract A-84, the southerly line of the Humphrey Jackson Labor, Abstract A-37, and the southerly line of the Humphrey Jackson Survey, Abstract A-37;

THENCE N 87-38-56 E, with the north line of said Sirocka 6.7198 acre tract, the south line of said M.W. Mc Clendon 19.9997 acre tract, the north line of the Reuben White Survey, Abstract A-84, the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, a distance of 24.77 feet passing a 5/8" iron rod set in concrete (X= 3240024.87, Y = 764709.07) marking the southeast corner of a appurtenant easement (60.00 foot width) recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, in all a distance of 1092.87 feet to a 5/8" iron rod set in concrete (X = 3241092.08, Y = 764752.89) marking the southeast corner of M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, the southwest corner of the T.A. Ramsey & L.L. Anderson 41.6778 acre tract recorded in Volume 4968, Page 298 of the Harris County Deed Records, said point also being in the north line of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed

544-88-1153



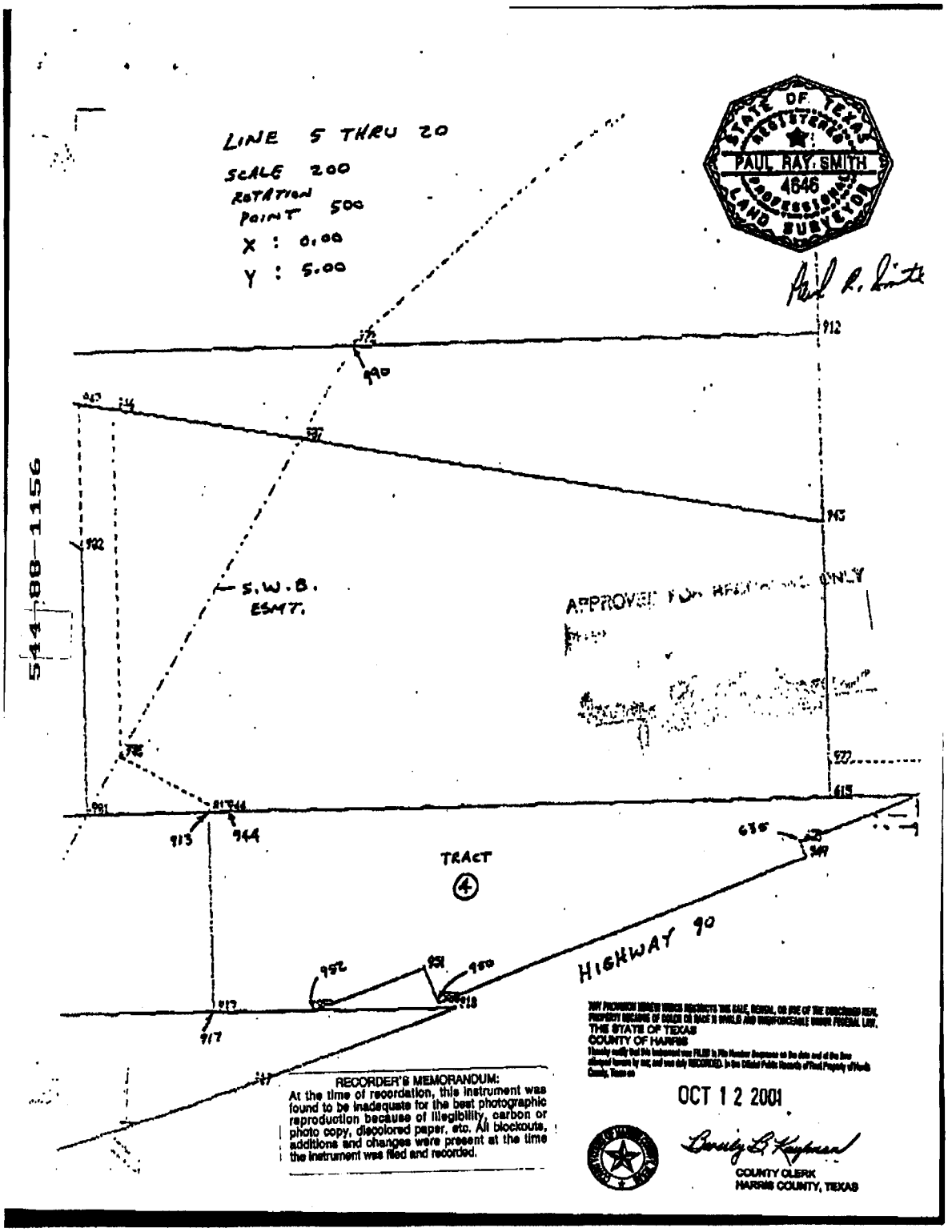
Coordinate File Name: SDP-06.CRD Lowest pt #: 1 Highest pt #: 2020
Job # : 600600
Description: SIKES DISPOSAL PITS COORDINATE FILE FOR BOUNDARY SURVEY
# of chars. in point descr.: 10

Paul Smith

FROM	TYPE	BEARING	DISTANCE	TO	NORTHING	EASTING
START				948	764758.719	3241245.463
948	INV	S 67-00-43 W	223.407	635	764671.470	3241039.788
635	INV	S 22-59-17 E	29.997	949	764643.855	3241051.503
949	INV	S 67-00-43 W	699.936	950	764370.503	3240407.151
950	INV	N 22-59-17 W	69.994	951	764434.939	3240379.816
951	INV	S 67-00-43 W	214.012	952	764351.359	3240182.799
952	INV	S 87-38-56 W	167.885	917	764344.472	3240015.055
917	INV	N 2-21-04 W	363.892	913	764708.058	3240000.128
913	S.S.	N 87-38-56 E	24.786	944	764709.074	3240024.873
913	INV	N 87-38-56 E	1092.868	615	764752.890	3241092.075
615	INV	N 87-49-24 E	163.488	948	764758.719	3241245.453
		N 0-00-00 E	0.000	CLOSING LINE		
			3016.479	DISTANCE TRAVERSED		

>100000000 PRECISION
AREA: 292713.24 Square Feet 6.7198 Acres

54-88-1155



RECORDER'S MEMORANDUM:
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility, carbon or photo copy, discolored paper, etc. All blockouts, additions and changes were present at the time the instrument was filed and recorded.

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

OCT 12 2001

COUNTY CLERK
HARRIS COUNTY, TEXAS

V357382

DEED NOTICE

STATE OF TEXAS
COUNTY OF HARRIS

10/12/01 300631573 V357382 $29.00

This Notice is filed pursuant to the rules of the Texas Natural Resource Conservation Commission (TNRCC) and affects the real property described in Exhibit A (Property).

This Notice is required for the following reasons:

As identified in reports on file with the TNRCC concerning the Sikes Disposal Pits Superfund Site, the shallow groundwater beneath the Property contains certain chemicals of concern that exceed the TNRCC-approved protective concentration levels. Use of this shallow groundwater for any purpose is prohibited unless otherwise approved in writing by the TNRCC or until such time as all the chemicals of concern no longer exceed their respective protective concentration levels. The shallow groundwater is continuing to be monitored in accordance with specific requirements of a TNRCC-approved plan unless or until the TNRCC makes any modifications to the plan.

For additional information, contact:

TNRCC
Central Records
12100 Park 35 Circle, Building D
Austin, Texas 78753

Mail: TNRCC - MC 199
P O Box 13087
Austin, Texas 78711-3087

As of the date of this Notice, the record owners of fee title to the Property are Jim and Edna Love with an address of 211 Highway 90, Crosby, Texas 77532.

This Notice may be rendered of no further force or effect only by a release executed by the TNRCC or its successor agencies and filed in the same Real Property Records as those in which this Notice is filed.

Executed this 25th day of September 2001.

By: _____
David L. Davis
Assistant Director, Remediation Division
Texas Natural Resource Conservation Commission

STATE OF TEXAS
COUNTY OF TRAVIS

BEFORE ME, on this the 25th day of September 2001, personally appeared David L. Davis, Assistant Director of the of the Remediation Division of the Texas Natural Resource Conservation Commission, known to me to be the person whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 25th day of September 2001.

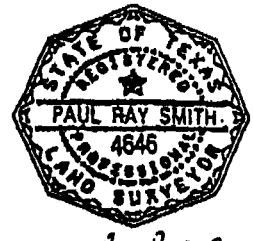
Barbara Ann Baywood
Notary Public in and for the State of Texas

BARBARA ANN BAYWOOD
MY COMMISSION EXPIRES
AUGUST 08, 2005

County of Travis

My Commission Expires: 8-8-05

544-88-1125



TEXAS WATER COMMISSION
Sikes Disposal Pits
Remedial Action
Mates And Bounds Description
17.5362 Acres
(763,876 square feet)
Reuben White Survey, A-84
Harris County, Texas

544-88-1127

A tract of land being 17.5362 acres (763,876 square feet) out of the Reuben White Survey, Abstract A-84, Harris County, Texas and being all of that 17.5362 acre tract conveyed to Jim and Edna Love by deed recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property; said tract being more particulary described by mates and bounds as follows with all bearings and coordinates referenced to the Texas Coordinate System (N.A.D. 1927) South Central Zone (all distances and acreages herein recited are grid and may be converted to surface by multiplying by the combined factor 1.00009):

COMMENCING at a 5/8" iron rod in concrete (X = 3241245.45, Y = 764758.72) set in the northerly right of way line of State Highway 90 (centerline station = 36+23.43, offset lt. = 110.00 feet) said point marking the northeast corner of the Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded in Volume 3085, Page 643 of the Harris County Deed Records) recorded in Volume 760, Page 61 of the Harris County Deed Records, the southerly corner of the T.A. Ramsey & L.L. Anderson 41.6778 acre tract recorded in Volume 4968, Page 298 of the Harris County Deed Records, said corner also being located in the in the south line of the Humphrey Jackson Labor, Abstract A-37, the south line of the Humphrey Jackson Survey, Abstract A-37, and the north line of the Reuben White Survey, Abstract A-84;

THENCE S 87-49-24 W, with the south line of the Humphrey Jackson Labor, Abstract A-84, the south line of the Humphrey Jackson Survey, Abstract, A-84, the north line of the Reuben White Survey, Abstract A-37, south line of said T.A. Ramsey & L.L. Anderson 41.6778 acre tract, and the north line of said Sirocka 6.7198 acre tract, a distance of 153.49 feet to a 5/8" iron rod set in concrete (X = 3241092.08, Y = 764752.89) marking the southwest corner of said T.A. Ramsey & L.L. Anderson 41.6778 acre tract recorded in Volume 4968, Page 298 of the Harris County Deed Records, the southeast corner of the M.W. Mc Clendon 19.9997 acre tract recorded under File No. G-838726, Film Code No. 176-90-1631 of the Harris County Official Public Records of Real Property, and being in the north line of Sirocka 6.7198 acre tract (Title By Limitation (Adverse Possession) by Richard O. and Mabel Sikes recorded

Official Public Records of Real Property, and also marking the southwest corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property;

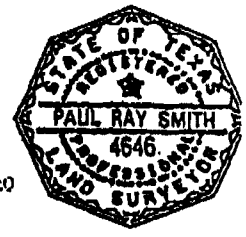
THENCE N 3-56-04 W, with the westerly line of said 17.5378 acre tract a distance of 15.62 feet to a point for corner (X = 3237953.99, Y = 764275.48) marking the westerly corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property;

THENCE N 14-57-04 W, with the westerly line of said 17.5362 acre tract a distance of 152.02 feet passing a point for corner (X = 3237914.77, Y = 764422.35) in the centerline of a Southwestern Bell Telephone easement (20.00 feet in width) recorde in Volume 1377, Page 580 of the Harris County Deed Records, in all a distance of 356.87 feet to a point for corner (X = 3237861.92, Y = 764620.27) marking the northwest corner of a 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property, and also marking the southwest corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records;

THENCE N 87-38-56 E, with the north line of said 17.5362 acre tract, the south line of said 19.5090 acre tract, the north line of the Reuben White Survey, Abstract A-37, the south line of the Humphrey Jackson Labor, Abstract A-84, the south line of the Humphrey Jackson Survey, Abstract A-84, a distance of 149.10 feet passing a set 5/8" iron rod set in concrete (X = 3238011.11, Y = 764626.40), a distance of 1930.33 feet passing a 5/8" iron rod set in concrete (X = 3239790.85, Y = 764699.47) marking the southeast corner of a 19.5090 acre tract conveyed to Richard O. and Mabel Sikes and recorded in Volume 1595, Page 227 of the Harris County Deed Records, said point also being in the centerline of a Southwestern Bell Telephone easement (20.00 feet width) recorded in Volume 1377, Page 580, Volume 1398, Page 633, Volume 2846, Page 476 of the Harris County Deed Records, in all a distance of 2139.79 feet to the POINT OF BEGINNING, containing a computed area of 17.5362 acres (763,876 square feet).

NOTE 1: 17.5362 acre tract conveyed to Jim and Edna Love and recorded under File No. K-371046, Film Code No. 036-71-1889 of the Harris County Official Public Records of Real Property is subject to an ingress and egress easement shown on Exhibit "A" of the Final Judgement, Cause No. 477,742 of the 157th District Court, Harris County, Texas. Said 17.5362 acre tract

54-88-1129



Coordinate File Name: SIP-09.CRD Lowest pt #: 1 Highest pt #: 2060
Job # : 500800
Description: SIKES DISPOSAL PITS COORDINATE FILE FOR BOUNDARY SURVEY
# of chars. in point descr.: 10

FROM	TYPE	BEARING	DISTANCE	TO	NORTHING	EASTING
START				946	764758.715	3241245.453
946	INV	S 87-49-24 W	153.488	615	764752.890	3241092.075
615	S.S.	S 87-38-56 W	1068.102	944	764709.074	3240024.873
615	INV	S 87-38-56 W	1092.868	913	764708.058	3240000.128
START				913	764708.058	3240000.128
913	INV	S 2-21-04 E	363.892	917	764344.472	3240015.055
917	S.S.	S 87-38-56 W	1673.814	982	764275.808	3238342.650
917	INV	S 87-38-56 W	2061.503	916	764258.904	3237955.288
916	INV	N 3-56-04 W	15.618	915	764275.486	3237954.216
915	S.S.	N 14-57-04 W	152.018	974	764422.357	3237914.996
915	INV	N 14-57-04 W	358.874	914	764620.279	3237862.144
914	S.S.	N 87-38-56 E	149.095	984	764626.395	3238011.114
914	S.S.	N 87-38-56 E	1930.331	901	764699.465	3239790.951
914	INV	N 87-38-56 E	2139.785	913	764708.058	3240000.128
				913	764708.058	3240000.128
		N 0-00-00 E	0.000	CLOSING LINE		
			4937.673	DISTANCE TRAVERSED		

>100000000 PRECISION
AREA: 763875.55 Square Feet 17.5362 Acres

54-88-1131

TX-D-83054

LOT TRACT 7 1

CAUTION: PROTECTION IS AFFORDED ONLY UNDER THE TERMS OF THE PROPOSED POLICY. STEWART TITLE GUARANTY COMPANY ASSUMES NO LIABILITY FOR ERRORS OR OMISSIONS IN THIS REPORT OR FOR VERBAL STATEMENT. This is a copy of a preliminary report made for use of Stewart Title Guaranty Company only, to determine whether a title insurance policy can be issued. If a copy is furnished to the parties to the transaction it is to facilitate preparation of the necessary instruments, to point out curative requirements, if any, and to show the results of the Company's title search upon which only the Company may rely. None of the information contained herein, or the absence of other information, constitutes a representation to any party, other than the Company, as to the status of title. If a title defect or encumbrance should occur which is not disclosed herein, the Company shall not be liable by reason of furnishing said report or for any verbal statements related thereto. The Company shall not be liable for any title defect unless a title insurance policy is hereafter issued by it, insuring against such defect, and then applicable premium paid therefor, and the Company's liability then shall exist only under the terms of the policy as prescribed by the State Board of Insurance and as measured and limited thereby.

TITLE REPORT

GF NO. 88113379-R

DATE: June 13, 1988 @ 8:00 A.M. CLOSER: RON ORR

APPLICANT: TBA

Examination from Records of STEWART TITLE COMPANY
Subject to: Claims of present unrecorded discrepancies in area and boundaries; unpaid bills for labor or material in connection with repairs or new improvements; unpaid taxes.

TITLE GOOD IN: JIM LOVE and wife, EDNA LOVE by virtue of Deed from GRACE D. MC COY dated August 11, 1983 recorded under Clerk's File No. K-171046 of the Real Property Records of Harris County, Texas.

CORRECT DESCRIPTION OF PROPERTY:

All that certain tract of land located in the Reuben White Survey, Abstract 84, in Harris County, Texas, containing 17.584 acres of land, more or less, and described in Exhibit "A" attached.

17.584 ac. @ $7.00

SUBJECT TO:

RESTRICTIONS:

None of Record.

EASEMENTS AND RIGHTS OF WAY:

Subject to any easements, rights-of-way, roadways, encroachments, etc., which a survey or physical inspection of the premises might disclose.

Easements granted to Southwestern Bell Telephone Company as reflected in instruments recorded in Volume 821, Page 28, Volume 2846, Page 476 and Volume 2849, Page 674 all of the Deed Records of Harris County, Texas.

Unlocated pipeline right-of-way easement in favor of Houston Gulf Gas Company as set forth in instrument recorded in Volume 815, Page 210 of the Deed Records of Harris County, Texas.

Subject to the rights of the General Public as to ingress and egress that passes through subject property as set forth in Final Judgement under Cause No. 477742 if the 157th Judicial District in the District Court of Harris County, Texas.

MINERALS AND/OR ROYALTIES:

Although there are no specific reservations of minerals on this property, all the oil, gas and other minerals, the royalties,

Continued on next page

TX-D-83056

54-88-1133

GF No. 88113379-B
TITLE REPORT CONTINUATION

MISCELLANEOUS CONTINUED:
Abstract of Judgment filed May 26, 1981 in the amount of $1,204.84 plus cost and interest, in favor of Montgomery Ward & Co., Inc., against Jim D. Love dba Jim Love Sand Co., recorded under Clerk's File No. G-985030 of the Real Property Records of Harris County, Texas.

Abstract of Judgment filed November 15, 1984 in the amount of $228.50 plus cost and interest, in favor of L. A. Goodman, M. D., against Edna L. Love, recorded under Clerk's File No. J-781802 of the Real Property Records of Harris County, Texas.

There is pending in the 125th Judicial District Court of Harris County, Texas, Cause No. 8624307 action styled Richard Sikes vs. Jim Love prior to closing, require said suit be released with prejudice.

Exhibit "A"

508-16-2607

544-88-1135

tract or parcel of land in the Northwest corner of the REUBEN WHITE LEAGUE, Abstract No. 84, in Harris County, Texas, more particularly described as follows;

BEGINNING at an iron pipe at the Northwest corner of the Reuben White League, said pipe being located on the East bank of the San Jacinto River South 38 deg. 35' East 362.5 feet from the center line of the T. & N.O. RR a 12 inch magnolia marked "X" bears Northwest 12.5 feet from said pipe;

THENCE South 12 deg. 41' East 358 feet to a stake on the East bank of said River;

THENCE South 1 deg. 40' West 15.62 feet to a stake on the East bank of said River marking the Southwest corner of the Tract herein described;

THENCE North 89 deg. 55' East 2061.69 feet along a line parallel with the North line of said Reuben White League to an iron pipe at the Southeast corner of the Tract herein described and the Southwest corner of the Sirocka Tract;

THENCE North 0 deg. 05' West 365 feet to an iron pipe in the North line of said League marking the Northeast corner of the Tract herein described and the Northwest corner of said Sirocka Tract;

THENCE South 89 deg. 55' West 2139.3 feet along the North line of said Reuben White League to the PLACE OF BEGINNING, and containing 17.584 acres of land.

544-88-1136

FILE FOR RECORD
8:00 AM

OCT 12 2001

County Clerk, Harris County, Texas

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED, in the Official Public Records of Real Property of Harris County, Texas on

OCT 12 2001

COUNTY CLERK
HARRIS COUNTY, TEXAS