FIFTH FIVE-YEAR REVIEW REPORT FOR DIXIE OIL PROCESSORS SUPERFUND SITE

HARRIS COUNTY, TEXAS

September 2018

Prepared by

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

FIFTH FIVE-YEAR REVIEW REPORT
DIXIE OIL PROCESSORS SUPERFUND SITE
EPA ID#: TXD089793046
HARRIS COUNTY, TEXAS

This attached report documents the U.S. Environmental Protection Agency's performance, determinations, and approval of the Dixie Oil Processors Superfund Site (DOP Site or Site) fifth five-year review under Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code Section 9621(c).

Summary of the Fifth Five-Year Review Report

The results of the Fifth Five-Year Review indicate that the remedy completed to date is currently protective of human health and the environment in the long-term. Overall, the remedial actions performed are functioning as designed, and the Site is being maintained appropriately. No deficiencies were noted that currently impact the short-term protectiveness of the remedy. Continued monitoring and maintenance will ensure the continued long-term protectiveness of the remedy.

Environmental Indicators

Human Exposure Status: Current human exposures at the Site are under control
Contaminated Groundwater Status: Groundwater migration is under control
Site-Wide Ready for Reuse: Yes

Actions Needed

None

Determination

I have determined that the remedy for the Dixie Oil Processors Superfund Site is currently protective of human health and the environment.

pr Ronald D Cumford _____ 9/13/18

Carl E. Edlund, P.E. Date
Director, Superfund Division
U.S. Environmental Protection Agency Region 6

CONCURRENCES

FIFTH FIVE-YEAR REVIEW REPORT
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Gary Miller
Remedial Project Manager

Date 8/30/18

Carlos A. Sanchez
Chief, Arkansas/Texas Section

Date 8/30/18

John C. Meyer
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Date 9/4/18

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Date 9/12/18

Mark A. Peycke
Chief, Superfund Branch, Office of Regional Counsel

Date 09/12/18

for Ronald D Cumland

Pamela Phillips
Deputy Director, Superfund Division

Date 9/13/18

ISSUES/RECOMMENDATIONS
FIFTH FIVE-YEAR REVIEW REPORT
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Issues/Recommendations
Operable Unit (OU) without Issues/Recommendations Identified in the Five-Year Review:
Source Control OU

Issues and Recommendations Identified in the Five-Year Review: None

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LIST OF ABBREVIATIONS & ACRONYMS

AER	Annual Effectiveness Report
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
1,2-DCA	1,2-Dichloroethane
DNAPL	Dense Non-Aqueous Phase Liquid
DOP	Dixie Oil Processors Superfund Site
DOPSTF	Dixie Oil Processors Site Task Force
EA	Endangerment Assessment
EPA	United States Environmental Protection Agency
FFSZ	Fifty Foot Sand Zone
FML	Flexible Membrane Liner
FYR	Five-Year Review
ICP	Institutional Control Plan
ICs	Institutional Controls
MCL	Maximum Contaminant Level
MCU	Middle Clay Unit
ug/l	Micrograms Per Liter
mg/l	Milligram Per Liter
MNA	Monitored Natural Attenuation
MOM	Maintenance, Operations, and Monitoring
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NCP	National Contingency Plan
NRDA	Natural Resources Damages Assessment
NSCZ	Numerous Sands Channels Zone
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Parts Per Billion
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SOP	Standard Operating Procedure
TBC	To be considered
1,1,2-TCA	1,1,2-Trichloroethane
TCEQ	Texas Commission on Environmental Quality
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the Fifth FYR for the Dixie Oil Processors Superfund Site (DOP Site and Site), which covers the period January 1, 2013 to December 31, 2017. The triggering action date for this review is five years from the date of signing the last FYR. The last FYR was signed by the EPA on September 20, 2013. The FYR has been conducted due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site work consists of one sitewide operable unit (OU). The March 31, 1988 Record of Decision (ROD) addressed all the threats at the Site as a single OU, including groundwater contamination and the source control.

The DOP FYR was led by Gary Miller of EPA Region 6. Participants included Sherell Heidt - Texas Commission on Environmental Quality (TCEQ), Matthew Foresman - Site Coordinator - DOP Site Task Force (DOPSTF), John Danna - DOPSTF Site Manager, Lawrence E. Engle – DOPSTF staff, and Roger Pokluda of GSI Environmental, Inc. - consultant for DOPSTF. The review began on March 3, 2018.

Site Background

This section describes the physical setting of the Site, a description of the land and resource use, and the environmental setting.

Physical Characteristics

The DOP Site is located almost 20 miles southeast of Houston, Texas, in Harris County, and occupies approximately 26.6 acres (ac). The Site is divided by Dixie Farm Road, into two areas referred to as DOP North and DOP South. DOP North is bounded on the north by Mud Gully, a flood control ditch and local tributary of Clear Creek, with the Brio Superfund Site (Brio) on the other side of Mud Gully; on the southeast Dixie Farm Road with vacant land on the other side of the road; and on the southwest by property being developed by a home builder. DOP South is bounded on the northwest by Dixie Farm Road with Brio on the other side of the road; on the northeast by Brio; on the southeast by vacant land; and on the southwest by Mud Gully with vacant land on the other side of Mud Gully. Figure 1 in Appendix B shows the general location of the DOP Site. Figure 2 in Appendix B shows the Site layout. Figure 3 in Appendix B Shows the land use surrounding the DOP Site.

The DOP Site is located within the Pleistocene Deltaic Plain of the Brazos River, known as the Alameda Delta. The Site is underlain with Pleistocene and Pliocene deposits to a depth of approximately 2,400 feet (ft.).

Generalized stratigraphic columns and a geologic cross-section are presented in Figures 1 through 3 of Appendix G. The Numerous Sand Channels Zone (NSCZ) and the Fifty Foot Sand Zone (FFSZ) are the two water-bearing units investigated at the DOP Site. The upper water bearing zone, the NSCZ, lies below the Upper Clay Unit and is comprised of interbedded sands and silty clays. The NSCZ is generally encountered from 14 to 32 ft. below ground surface (bgs) and has a low well yield. The thickness of the NSCZ varies from less than 10 to over 20 ft.

The groundwater in the NSCZ typically flows toward and discharges to Mud Gully to the east of DOP North and west of DOP South.

The FFSZ is separated from the NSCZ by the Middle Clay Unit (MCU), a confining layer ranging in thickness from 8 to 20 ft. Ranging in thickness from 35 to 45 ft., the FFSZ is generally encountered between 52 and 61 ft. bgs and has a reasonably high well yield. Groundwater in the FFSZ flows in an eastwardly direction at rates on the order of 10 to 50 ft. per year.

Land and Resource Use

The Site was used for processing activities spanning the period of 1969 to 1986 consisting of reclamation of metals and hydrocarbons from various source materials, most of which were catalysts, residues, tank bottoms, and tars of other processes performed at off-site locations. Site pits were closed in 1975 and 1977. The EPA placed the Site on the NPL on October 4, 1989.

Current land use of the surrounding area includes residential development, a college, a hospital, and commercial development to the northeast. The area to the east includes residential development, a convenience store that sells fuel, and an active oil field. A buffer of undeveloped properties exists to south of the Site. The property to the south has been used for the establishment of a wetland habitat and preservation of forest habitat as part of a Natural Resource Restoration Project implemented by the Brio Site Task Force in conjunction with several state and federal agencies. Residential development is less than 0.1 miles to north and the west of the Site.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Dixie Oil Processors Superfund Site		
EPA ID: TXD089793046		
Region: 6	**State:** TX	**City/County:** Harris

SITE STATUS	
NPL Status: Deleted	
Multiple OUs? No	**Has the Site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Gary Miller
Author affiliation: EPA Region 6
Review period: 1/1/2013 - 12/31/2017
Date of Site inspection: 3/28/2018
Type of review: Statutory
Review number: 5
Triggering action date: 9/20/2013
Due date ***(five years after triggering action date)***: 9/20/2018

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

There were approximately 107,351 cu yds. of contaminated soils and sub-soils on the Site associated with six pits. For the pit samples, ethylbenzene had the highest concentration at 6.40 milligrams/kilograms (mg/kg) of the volatile organic compounds; hexachlorobenzene had the highest concentration at 674 mg/kg of the base neutral organic compounds; and copper had the highest concentration at 72,860 mg/kg of the inorganic compounds. No organic compounds were found in any of the sub-soil samples.

The EPA concluded that potential exposures of the on-site contaminated soils can pose a major risk to human health and the environment through four major pathways. The pathways include the following:

- ingestion of on-site soils;
- direct contact with on-site soils;
- inhalation of dust from the site; and,
- ingestion of shallow groundwater from the Site.

Many of the chemicals found on the Site are carcinogens (1,1,2-trichloroethane and methylene chloride) or are toxic to the central nervous system, liver, or respiratory system (toluene and chlorobenzene).

Response Actions

Initial Response

In 1985, the DOP Site was referred to the EPA by the Texas Water Commission (TWC) for inclusion on the National Priorities List. Due to its proximity to the Brio Site, its past history, and because many of the same potentially responsible parties at Brio were potentially involved at the DOP Site, the Brio Administrative Order on Consent (AOC) was amended on April 23, 1986, to include the DOP Site. Woodward-Clyde Consultants (WCC) completed a Supplemental Remedial Investigation (SRI) at the Brio and DOP sites in March 1987. The purpose of the SRI was to conduct additional activities identified by the EPA, Resource Engineering, Inc., and the Brio Site Task Force following the completion of the Remedial Investigation (RI).

Remedial Actions

The Site's long-term remedy included removal of surface contamination, improvement of surface water controls, reconstruction of Mud Gully and installation of a security fence, as documented in a ROD issued March 1988. Cleanup actions also included removal and off-site disposal of tank wastes, breakdown of process tanks and drums, disposal of process equipment, and institutional controls. Remedy construction took place between 1992 and 1993. Site inspections and groundwater monitoring activities are ongoing. The major components of the remedy include:

- Removal of affected materials and soils;
- Capping the Site with an engineered cover system consisting of compacted clay;
- Improvement to Mud Gully to ensure flow capabilities within the drainage system.

Remedial Action Objectives

The remedial objectives included in the 1988 ROD were to minimize direct contact with, and ingestion of, contaminants in the soil.

Remedy Selection

A ROD was issued for the DOP Site by the EPA on March 31, 1988, selecting limited action and monitoring including a site closure cover with institutional controls. In accordance with the requirements of a Unilateral Administrative Order, Docket Number 6-23-91, signed by the EPA on July 10, 1991, (UAO) EPA directed 12 entities to design and implement the RD/RA for the Site.

Summary of Record of Decision

- Affected Materials and Soils- The DOP Endangerment Assessment identified target cleanup levels based on human exposure to Site contaminants. However, the site investigation did not identify any contaminated soils on the DOP Site that exceeded the action levels discussed in the endangerment assessment.
- Mud Gully - The ROD called for widening the flood control ditch to remove the "bottle neck" that existed along the DOP Site.
- Storage Tanks and Drums - The ROD called for the demolition of any remaining surface tanks and vessels and disposal of their contents.
- Site Management - The ROD called for re-grading and re-vegetating the entire DOP Site to promote drainage and minimize surface runoff. All re-graded areas were covered with six inches of top-soil, where necessary, to promote vegetative growth.
- Site Control- The ROD called for permanent Site controls, imposition of deed notices and restrictions (if necessary and possible), and access restrictions through a fence or similar barrier.

Appendix I presents the chronology of events at the DOP Site.

Figure 2 in Appendix B presents the locations of wells and other Site features.

Compliance standards in the ROD are presented in Table 1.

Table 1
Compliance/Performance Standards

NSCZ Groundwater Performance Standards (mg/l)	
1,1,2-Trichloroethane	4.18
1,2-Dichlioroethane	20.00
1,1-Dichloroethene	8.74
Vinyl Chloride	9.45
FFSZ Groundwater Maximum Contaminant Levels (ug/l)	
Volatiles	
Benzene	5
Carbon Tetrachloride	5
Chlorobenzene	100
1, 2-Dichlorobenzene (o-dichlorobenzene)	600
1, 4-Dichlorobenzene (p-dichlorobenzene)	75
1, 2-Dichloroethane	5
1, 1-Dichloroethene	7
cis-1, 2-Dichloroethene	70
trans-1, 2-Dichloroethene	100
Methylene Chloride (Dichloromethane)	5
1, 2-Dichloropropane	5
Ethylbenzene	700
Styrene	100
Tetrachloroethene	5
Toluene	1000
1, 2, 4-Trichlorobenzene	70
1, 1, 1-Trichloroethane	200
1, 1, 2-Trichloroethane	5
Trichloroethene	5
Vinyl Chloride	2
Xylenes (Total)	10000
Total trihalomethanes (TTHMs) *	100
Semivolatiles	
Benzo(a)pyrene (PAHs)	0.2
bis(2-Ethylhexyl)phthalate [2]	6
Hexachlorobenzene	1
Hexachlorocyclopentadiene	50
Pentachlorophenol	1

Status of Implementation

The DOPSTF prepared an RD/RA work plan for the implementation of the UAO's Scope of Work. The EPA approved the Phase I Work Plan on March 25, 1992. The Phase I activities included the following:

- removal of surface contamination;
- improvement of surface water controls;
- reconstruction of Mud Gully; and
- vegetation and installation of security fencing.

The Phase II Work Plan was approved by the EPA on August 17, 1992. The Phase II activities included the following:

- removal and off-site disposal of tank residuals;
- dismantlement of the process tanks and drums; and
- disposal of process equipment.

The DOPSTF notified the EPA that Phase I and Phase II activities were completed on March 27, 1993. A pre-certification inspection was conducted by EPA on April 20, 1993. The EPA noted minor items that required additional work, such as new staining of surface soils. The DOPSTF corrected these items, and in a letter dated April 27, 1993, certified that the RA was complete. The EPA completed the Preliminary Closeout Report on June 9, 1993.

The DOPSTF completed a RA Report, which included a certification by a Registered Texas Professional Engineer that all the requirements of the Remedial Design were met. The EPA approved the report on August 6, 1993 and issued a Final Closeout Report on January 18, 1996.

The DOP North and South cover components consist of a compacted clay layer of variable thickness, and a vegetative cover. The DOP North cover system encompasses approximately 19-ac and the South cover system encompasses approximately 7.6-ac.

An additional compacted clay layer was extended over a segment of the DOP South cover system in conjunction with the cover construction on the neighboring Brio Site in 2001 to 2002. This additional cover soil provides controlled surface water runoff . The compacted clay cover was constructed to the limits of the soil bentonite barrier wall on the south and west sides. It was tied-in with the Brio compacted clay layer on the east side and to the Dixie Farm Road right-of-way on the north side. A vegetative cover was installed over the DOP South cover system.

Institutional Controls

The Institutional Control (IC) Plan for the Dixie Oil Processors Superfund Site provides for ICs to reduce the risk to public health and the environment from potential hazards posed by the Site. The IC Plan was incorporated into the Maintenance, Operations, and Monitoring (MOM) Plan in April 2006. The plan implementation tasks are listed as recordation of institutional control documents and monitoring of Site security.

As called for by the IC Plan, deed restrictions and notices have been filed at the Harris County Clerk's Office and are included in Appendix F.

Site personnel inspect the perimeter fencing, gates, and locks on a weekly basis, at a minimum, to evaluate compliance with institutional control documents.

Table 2 presents a summary of the ICs.

Table 2
Summary of Implemented Deed Restriction ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s) (Harris Co. Tax ID)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater Soil Sediments	Yes	Yes	• 0410110000260 • 0402230000080 • 0402230000234	Restricts certain activities within the DOP Site boundaries. Provides notice of CERCLA actions and Site contaminants.	Deed Restriction Harris Co. Doc#: Y730709 8/19/2005

Systems Operations/Operation & Maintenance

Because hazardous materials remain onsite, access to the DOP Site and the groundwater monitoring wells is restricted.

The MOM Plan was submitted to the EPA in July 1993 and last amended in May 2006.

The MOM activities include:

- Inspect security lighting, gates, fences, roads, drainage, signs, and worker safety equipment/systems.
- Inspect remedial components: cover system, monitoring wells, and the Mud Gully slope condition.
- Groundwater, sampling and monitoring.
- Maintenance of the cover system.
- Reporting to EPA.

The MOM costs for the five-year period covered by this report (2013 through 2017) were $38,105.

III. PROGRESS SINCE THE LAST REVIEW

Table 3
Protectiveness Determinations/Statements from the Fourth Five-Year Review

OU	Protectiveness Determination	Protectiveness Statement
Source Control	Short-term Protective	As part of the Fourth Five-Year Review, the EPA and TCEQ conducted inspections on December 13, 2012, and March 21, 2013 and determined that the implemented RA is protective of human health and the environment in the short-term. The RA has removed exposure pathways that could have resulted in unacceptable risks by preventing exposure of human receptor populations to contaminated air, soils, and groundwater. Long-term protectiveness of the remedial action will be achieved by continued monitoring of the groundwater to assess the effectiveness of the Site controls and by institutional controls.[1]

Status of Recommendations

The previous FYR report stated that the remedy continued to be protective of human health and the environment. One issue, however, was identified that could have potentially required further actions. A summary of the issue and the reevaluation and actions taken at the DOP Site since the previous FYR are given in Table 4:

Table 4
Status of Recommendations from the Fourth Five-Year Review

OU	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
	Increasing level of contaminants in NSCZ at DMW-35A	Continue annual groundwater sampling. Ensure that the Brio Site Mud Gully sampling program captures any impacts to the stream from discharge of NSCZ groundwater. Evaluate Brio Site South Plume recovery system to see if changes are necessary to mitigate the impact of the plume on the DOP Site.	Completed	Groundwater and Mud Gully surface water sampling has continued during the FYR period. Volatile concentrations of site constituents in NSCZ groundwater monitoring well DMW-35A have decreased during the FYR Period. Sampling has continued in Mud Gully and Clear Creek and volatile concentrations of site constituents continue to be well below Stream Standards. The NSCZ groundwater recovery system was evaluated and a procedure to maintain adequate groundwater recovery in the South Plume was implemented.	January 2016

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by placing a classified advertisement in the South Belt Ellington Leader newspaper on April 26, 2018, stating that the EPA was conducting a FYR and that the results of the review would be available in the DOP Site Information Repository and online at the EPA website. The notice included the DOP Site location and name and contact information of the EPA remedial project manager. A copy of the public notice and affidavit can be found in Appendix E.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. Interview notes are presented in Appendix E. The results of these interviews are summarized below.

Sherell Heidt - Project Manager for TCEQ
Ms. Heidt wrote that the Site is well maintained. There have been no complaints to TCEQ, violations, or other incidents requiring a response by TCEQ. The TCEQ is well informed about the Site's activities and progress. The TCEQ supports the DOPSTF's efforts to confirm that Brio Site groundwater issues are not impacting the protectiveness of the DOP remedy.

Marie Flickinger - Owner of South Belt Ellington Leader Newspaper, Community Advisory Group Representative
Ms. Flickinger wrote that the overall impression of the DOP Superfund project is that it appears okay for the chosen remedy. She said she is well informed about activities at the Site. The only complaints she has had have been from the DOP land owner. Ms. Flickinger wants to keep deed restrictions at the Site in place.

Data Review

Performance and compliance monitoring data collected as part of the operations and maintenance were reviewed as part of this FYR. The data consist of NSCZ and FFSZ groundwater quality data. Data are collected on an ongoing basis, presented and discussed with EPA in quarterly meetings, and reported.

Groundwater Quality Monitoring

DOPSTF conducted NSCZ and FFSZ groundwater quality monitoring at the DOP Site. The wells that are sampled in the monitoring program are listed in Table 5.

Table 5

NSCZ Compliance/Performance Monitoring Wells	
DMW-33A	DMW-44A
DMW-35A	DMW-47A
DMW-37A	DMW-51A
FFSZ Compliance/Performance Monitoring Wells	
DMW-52B	DMW-47B

Groundwater samples were collected from wells screened in the NSCZ and FFSZ.

The FFSZ groundwater samples were analyzed for EPA drinking water volatile compound list. Results of the FFSZ groundwater quality monitoring (shown in Appendix B) for drinking water volatiles during this FYR period are summarized as follows:

- Well DMW-52B - Non-detect (below MCLs) during the FYR period.
- Well DMW-47B - Non-detect (below MCLs) during the FYR period.

The NSCZ samples were analyzed for EPA method 8260B target compound list. Results of the NSCZ groundwater quality monitoring (shown in Appendix B) for drinking water volatiles during this FYR period are summarized as follows:

- Well DMW-33A: No site constituents were detected.
- Well DMW-35A: Site constituents were either non-detect or detected below NSCZ standards.
- Well DMW-37A: Site constituents were either non-detect or detected below NSCZ standards.
- Well DMW-44A: Site constituents were either non-detect or detected below NSCZ standards.
- Well DMW-47A: Site constituents were either non-detect or detected below NSCZ standards.
- Well DMW-51A: No site constituents were detected.

Site Inspection

An inspection of the Site was conducted on March 28, 2018. In attendance were EPA RPM Gary Miller, Sherell Heidt of the TCEQ, DOP Site Coordinator Matthew Foresman, DOP Site Manager John Danna, DOP staff Lawrence Engle, and DOP consultant Roger Pokluda of GSI Environmental. The purpose of the inspection was to assess the protectiveness of the remedy.

A site inspection checklist and photographs taken following the inspection are provided in Appendix C. Site inspection tasks included a visual inspection of Site features including the water treatment facility, the cap, compliance wells, fences and gates, and the treatment plant monitoring equipment and protocol. Site logs, documents, and records were reviewed. The Site inspection indicated that the remedy is effective and operating as intended. No concerns were noted during the inspection.

V. TECHNICAL ASSESSMENT

QUESTION A:
Is the remedy functioning as intended by the decision documents?

Question A Response:

Yes. The remedy is functioning as intended by the decision documents.

The review of documents, sampling results, ARARs, risk assumptions, and the results of the Site inspection indicate that the remedy is functioning as intended by the ROD.

O&M is occurring as required in the O&M plans. Regular site inspections are performed. These inspections include the following: gates, fences, access roads, wells, the cap, and drainage facilities. During the site inspection, a visual inspection of Site features including the cap, compliance wells, fences and gates found that the remedy is in place and effective.

Institutional controls are in place and are effective at preventing unsafe exposure to contaminants onsite.

QUESTION B:
Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Response:

Yes. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection are still valid.

The five-year review process includes identification and evaluation of changes in the regulations that form the basis for the ROD-specified Applicable or Relevant and Appropriate Requirements (ARARs) to determine whether such changes may affect the protectiveness of the selected remedy. Appendix D identifies the ARARs for the DOP Site that were identified in the ROD dated March 31, 1988. TCEQ and Federal regulations have not been revised in a manner that would call into question the effectiveness of the selected remedy. No new regulations have been promulgated by the State of Texas or the Federal government that would call into question the protectiveness of the selected remedy.

There has not been a change in exposure pathways that may call into question the protectiveness of the remedy.

There have been no changes in toxicity characteristics, or other contaminant characteristics, related to the DOP Site. Additionally, there has been no change to the standardized risk assessment methodology that would affect the protectiveness of the selected remedy.

QUESTION C:
Has any other information come to light that could call into question the protectiveness of the remedy?

Question C Response:

No. There is no other information that has come to light that could call into question protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
Operable Unit (OU) without Issues/Recommendations Identified in the Five-Year Review:
Source Control OU

Issues and Recommendations Identified in the Five-Year Review:
None

VII. PROTECTIVNESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: Source Control	*Protectiveness Determination:* Protective
Protectiveness Statement: The remedy for the Source Control OU is currently protective of human health and the environment because the waste has been removed or contained.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: The Site's remedy is protective of human health and the environment in the long-term. There is no evidence that there is current exposure to Site contaminants and the remedy is being implemented as planned.

VIII. NEXT REVIEW

The next FYR report for the DOP Site is required five years from the completion date of this review. The completion date is the date of the signature shown on the summary of findings page attached to the cover sheet.

APPENDIX A

REFERENCE LIST

FIFTH FIVE-YEAR REVIEW REFERNCES

Dixie Oil Processors Site Record of Decision, March 31, 1988

Dixie Oil Processors Site Post Closure Monitoring, Operations and Maintenance Plan, May 2006

Dixie Oil Processors Site Final Closeout Report, January 1996

Phase I Fifty-Foot Sand Zone (FFSZ) Groundwater Investigation Report, Brio Refining Superfund Site, Harris County, Texas, January 14, 2011

Dixie Oil Processors Site 28th Annual Report, September 2014

Dixie Oil Processors Site 29th Annual Report, June 2015

Phase II Fifty-Foot Sand Zone (FFSZ) Groundwater Investigation Report, Brio Refining Superfund Site, Harris County, Texas, March 11, 2016

Dixie Oil Processors Site 30th Annual Report, September 2016

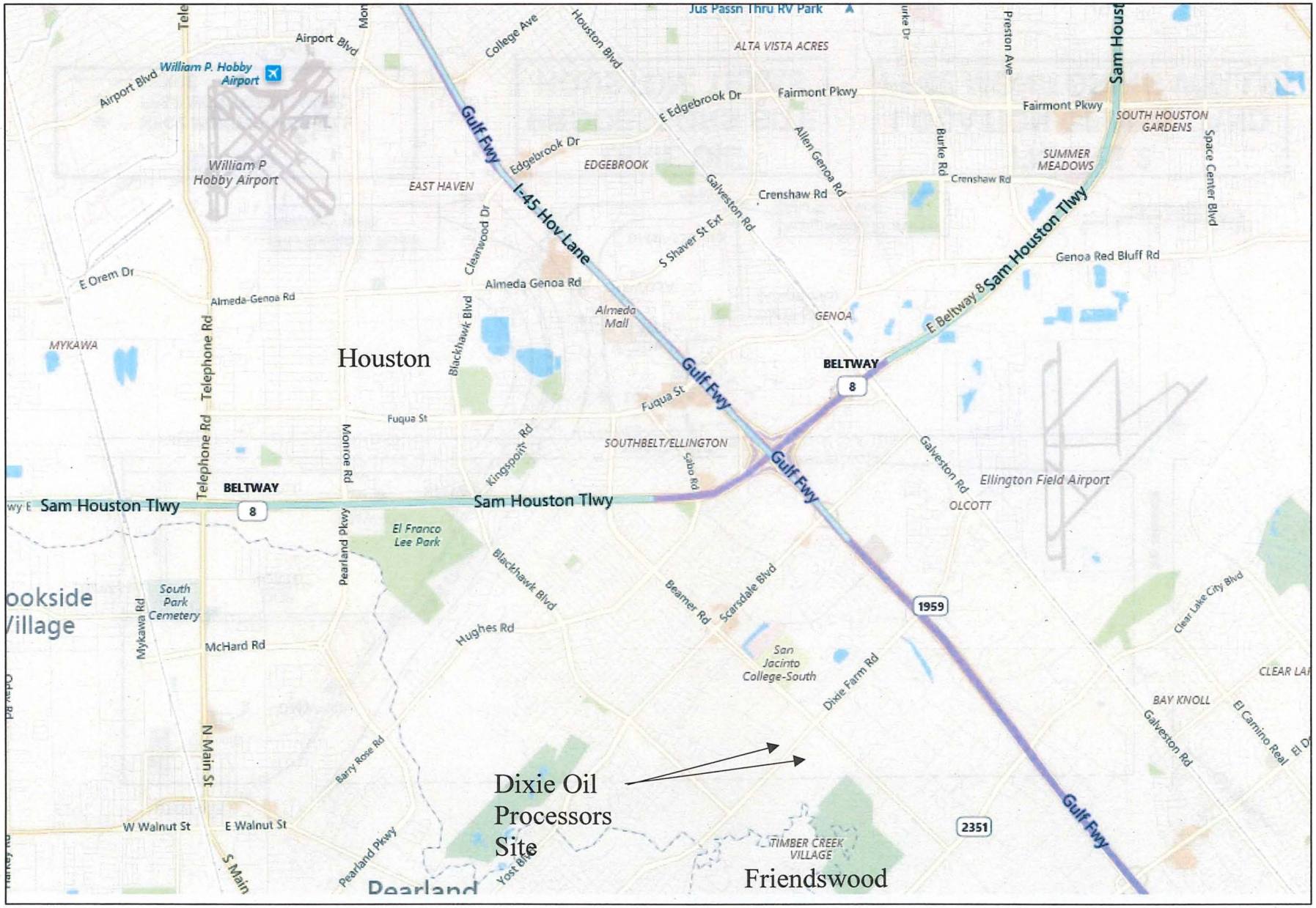
Dixie Oil Processors Site 31st Annual Report, March 2018

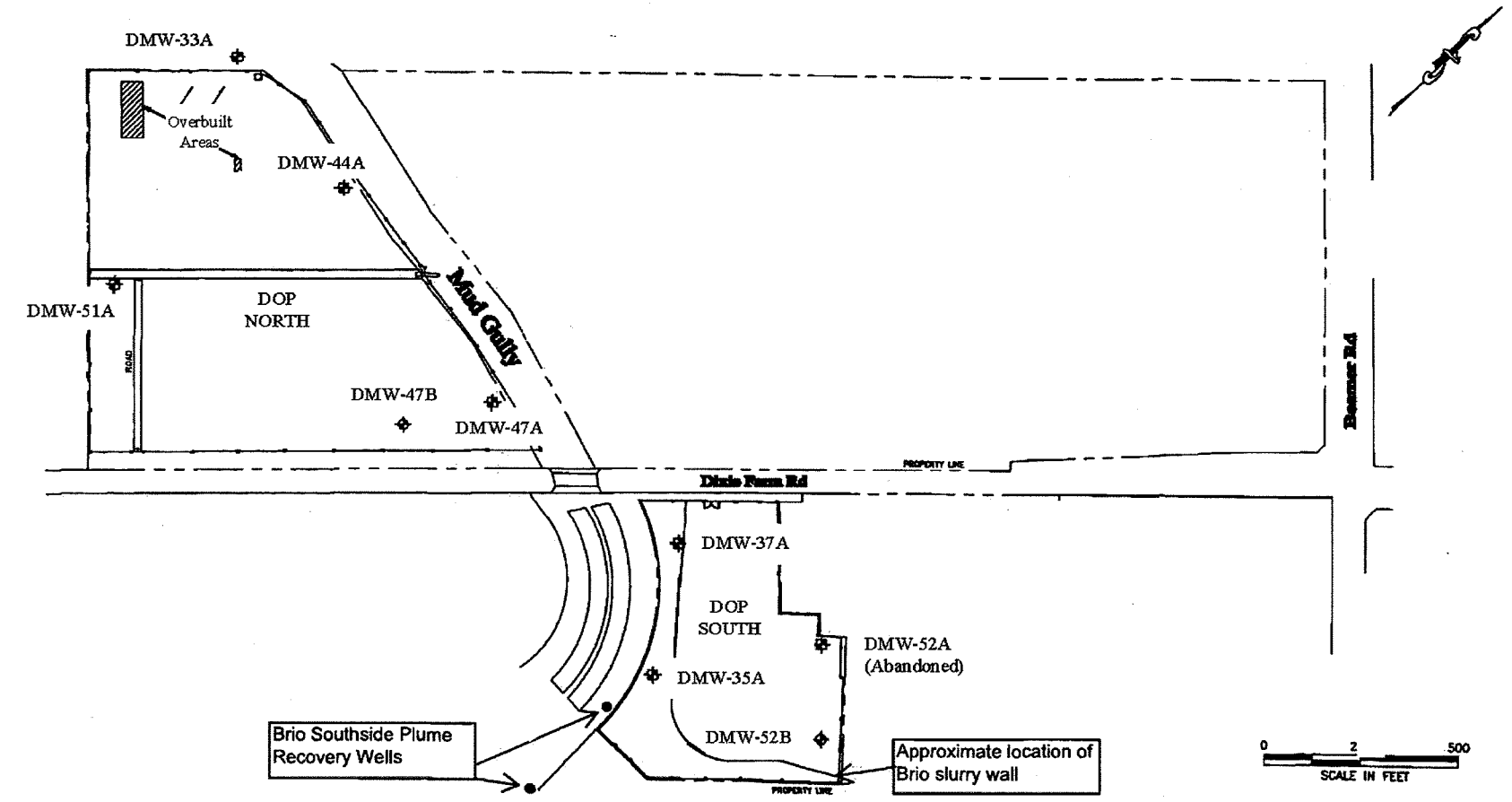
Dixie Oil Processors Site 32nd Annual Report, June 2018

APPENDIX B

SITE LOCATION, WELLS, SITE STRUCTURES AND ANALYTICAL RESULTS

Figure 1
Site Location





DIXIE OIL PROCESSORS SITE HOUSTON, TEXAS

FIGURE 2 LOCATION OF NSCZ AND FFSZ MONITORING WELLS

Figure 3
Land Use Surrounding the DOP Site

DIXIE OIL PROCESSORS SITE FFSZ ANALYTICAL RESULTS - FIFTH FIVE YEAR REVIEW

COMPOUND	FFSZ LIMIT	DMW-47B					DMW-52B				
		10/24/13	10/7/14	10/28/15	10/18/16	10/19/17	10/24/13	10/7/14	10/28/15	10/18/16	10/19/17
1,1,1-Trichloroethane	**200**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	**7**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	**600**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (Total)	**70**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	**70**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	**75**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	**100**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	**700**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	**100**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	**1,000**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	**2**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylenes (Total)	**10,000**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:

All units are in ug/l.

U - Not detected at the noted detection limit.

FFSZ limits are MCLs.

DIXIE OIL PROCESSORS SITE NSCZ ANALYTICAL RESULTS - FIFTH FIVE YEAR REVIEW

COMPOUND	NSCZ LIMIT	DMW-33A					DMW-35A				
		10/24/13	10/8/14	10/28/15	10/18/16	10/19/17	10/24/13	10/8/14	10/28/15	10/18/16	10/19/17
1,1,1-Trichloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U
1,1,2,2-Tetrachloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	19	5 U	23	100 U
1,1,2-Trichloroethane	**4,180**	5 U	5 U	5 U	5 U	5 U	***5,700 D***	3,000 D	2,600 D	2,100 D	1,700
1,1-Dichloroethane	None	5 U	5 U	5 U	5 U	5 U	660 D	290	190	190	150
1,1-Dichloroethene	**8,740**	5 U	5 U	5 U	5 U	5 U	1,900 D	1,100 D	930 D	640	940
1,2-Dichloroethane	**20,000**	5 U	5 U	5 U	5 U	5 U	9,700 D	5,000 D	3,300 D	3,600 D	2,300
1,2-Dichloroethene (Total)	None	10 U	10 U	10 U	5 U	5 U	1,110 D	520	360	300	280
1,2-Dichloropropane	None	5 U	5 U	5 U	5 U	5 U	7.3	4.4 J	1.8 J	5 U	100 U
2-Butanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
2-Hexanone	None	8.2 J	9.0 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
4-Methyl-2-Pentanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
Acetone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
Benzene	None	5.3	5.3	5 U	5 U	5 U	53	25	17	15	100 U
Bromodichloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U
Bromomethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
Carbon Disulfide	None	5 U	5 U	5 U	5 U	5 U	10 U	10 U	10 U	5 U	200 U
Carbon Tetrachloride	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U
Chlorobenzene	None	5 U	5 U	5 U	5 U	5 U	82	47	41	39	100 U
Chloroethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U
Chloroform	None	5 U	5 U	5 U	10 U	10 U	370	200	79	93	61 J
Chloromethane	None	10 U	10 U	10 U	10 U	10 U	5 U	5 U	10 U	10 U	200 U
Cis-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U
Dibromochloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U
Ethylbenzene	None	5 U	5 U	5 U	5 U	5 U	20	7.3	2.7 J	2.8 J	100 J
Methylene Chloride	None	10 U	10 U	10 U	10 U	10 U	8.8 J	5U	10 U	10 U	200 U
Styrene	None	5 U	5 U	5 U	5 U	5 U	5.6	2.1 J	0.75 J	5 U	100 U
Tetrachloroethene	None	5 U	5 U	5 U	5 U	5 U	33	19	11	13	100 U
Toluene	None	5 U	5 U	5 U	5 U	5 U	44	28	24	26	18 J
Trans-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	24	29	5 U	100 U
Trichloroethene	None	5 U	5 U	5 U	5 U	5 U	240	150	110	93	61 J
Vinyl Chloride	**9,450**	10 U	10 U	10 U	5 U	5 U	3,500 D	3,700 D	1,300 D	960 D	2,100
Xylenes (Total)	None	15 U	15 U	15 U	5 U	5 U	41	20	10	10	100 U

Notes:

All units are in ug/l.

U - Not detected at the noted detection limit.

J - Estimated value – Detected less than detection limit.

Bold/italicized values indicate concentration above NSCZ limit.

COMPOUND	NSCZ LIMIT	DMW-37A					DMW-44A				
		10/24/13	10/8/14	10/28/15	10/18/16	10/19/17	10/24/13	10/8/14	10/28/15	10/18/16	10/19/17
1,1,1-Trichloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	**4,180**	2.4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	None	24	9.5	5.7	2.4 J	9.9	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	**8,740**	5 U	5.1	3.7 J	6.8	12	3.8 J	2.7 J	8.3	18	22
1,2-Dichloroethane	**20,000**	14	2.6 J	5 U	5 U	5 U	3.1 J	1.5 J	3.4 J	13	6.1
1,2-Dichloroethene (Total)	None	10	4.5 J	2.4 J	5 U	8.1	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	None	9.1	4.4 J	1.7 J	0.77 J	2.4 J	0.87 J	0.62 J	5 U	1.4 J	1.8 J
Bromodichloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	None	8.5	5.2	2.2 J	5 U	2.0 J	5 U	5 U	5 U	5 U	5 U
Chloroethane	None	2.5 J	2.4 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	None	5 U	200	5 U	5 U	5 U	5 U	5 U	5 U	10 U	10 U
Chloromethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cis-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	None	5U	5U	5U	5U	5U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	None	10 U	10 U	10 U	10 U	10 U	5 U	5 U	5 U	5 U	5 U
Styrene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	None	8.9	3.7 J	1.1 J	5 U	0.61 J	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	**9,450**	480	330	100	33	270 D	14	16	15	25	51
Xylenes (Total)	None	2.0 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

All units are in ug/l.

U - Not detected at the noted detection limit.

J - Estimated value – Detected less than detection limit.

Bold/italicized values indicate concentration above NSCZ limit.

COMPOUND	NSCZ LIMIT	DMW-47A					DMW-51A				
		10/24/13	10/8/14	10/28/15	10/18/16	10/19/17	10/24/13	10/8/14	10/28/15	10/18/16	10/19/17
1,1,1-Trichloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	**4,180**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	None	1.3 J	1.3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	**8,740**	6.1	5.3 J	5.8	3.4	4.8 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	**20,000**	54	44	43	37	30	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (Total)	None	10.4	10.3	9.6 J	2.7	6.6 J	10 U	10 U	10 U	5 U	5 U
1,2-Dichloropropane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	None	5 U	5 U	5 U	10 U	10 U	5 U	5 U	5 U	10 U	10 U
Chloromethane	None	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cis-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	**9,450**	120	190	67	54	100	10U	10U	10U	5 U	5 U
Xylenes (Total)	None	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

All units are in ug/l.

U - Not detected at the noted detection limit.

J - Estimated value – Detected less than detection limit.

Bold/italicized values indicate concentration above NSCZ limit.

APPENDIX C

SITE INSPECTION CHECKLIST AND PHOTOS

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site name: Dixie Oil Processors Superfund Site	**Date of inspection: March 28, 2018**
Location and Region: Harris County, TX - EPA Region 6	**EPA ID: TXD089793046**
Agency, office, or company leading the five-year review: EPA	**Weather/temperature: Overcast 80°F**

Remedy Includes: (Check all that apply)

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

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** John Danna (Name) DOP Site Manager (Title) 3/28/18 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 281-922-1054
   Problems, suggestions; ☐ Report attached
   The Site is in good condition and the remedy is functioning as designed.

2. **O&M staff** Lawrence Engle (Name) DOP Site Staff (Title) 3/28/18 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 281-922-1054
   Problems, suggestions; ☐ Report attached
   The Site is in good condition and the remedy is functioning as designed.

3. **EPA RPM** Gary Miller (Name) Remedial Project Manager (Title) 3/28/18 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. 214-665-8318
   Problems, suggestions; ☐ Report attached

4. **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: Texas Commission on Environmental Quality (TCEQ)
   Contact: Sherell Heidt (Name) Project Manager (Title) 7/16/2018 (Date) 713-767-3708 (Phone no.)
   Problems; suggestions: ☐ Report attached in Appendix E.

5. **Other interviews** (optional)
Name: Marie Flickinger
Title: Chairperson-Brio Site Community Advisory Group and Owner-South Belt Ellington Leader News Paper Date: 7/17/2018 Phone no.: 281-481-5656
Problems; suggestions: ☐ Report attached in Appendix E.

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

1. **O&M Documents**
☐ O&M manual ☐ Readily available ☐ Up to date ☐ N/A
☐ As-built drawings ☐ Readily available ☐ Up to date ☐ N/A
☐ Maintenance logs ☐ Readily available ☐ Up to date ☐ N/A
Remarks: _____

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date ☐ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☐ N/A
Remarks: _____

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: All operations are authorized by Site plans with approval and oversight from EPA.

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 _____

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☐ N/A
Remarks _____

9. **Discharge Compliance Records**
☐ Air ☐ Readily available ☐ Up to date ☐ N/A
☐ Water (effluent) ☐ 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

1. **O&M Organization**
☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

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

Total annual cost by year for review period if available

From	1/1/13	To 12/31/13	$9,213	☐ Breakdown attached
	Date	Date	Total cost	
From	1/1/14	To 12/31/14	$1,722	☐ Breakdown attached
	Date	Date	Total cost	
From	1/1/15	To 12/31/15	$6,267	☐ Breakdown attached
	Date	Date	Total cost	
From	1/1/16	To 12/31/16	$1,596	☐ Breakdown attached
	Date	Date	Total cost	
From	1/1/17	To 12/31/17	$843	☐ Breakdown attached
	Date	Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None.

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

A. Fencing

1. ☐ Location shown on site map ☐ Gates secured ☐ N/A
Remarks: Gates and fencing were in good condition and secured.

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks: There is a sign at the site entrance identifying the Site as the DOP Refinery Superfund Site with the RPM's name and phone number. "No Trespassing" signs are mounted on site gates and approximately every 100 feet along the fence line.

C. Institutional Controls (ICs)

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

Type of monitoring (*e.g.*, self-reporting, drive by): Self Reporting
Frequency: IC monitoring is conducted daily by onsite PRP staff.
Responsible party/agency: PRP
Contact: John Danna Site Manager 281-922-1054
Name Title Date Phone no.

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

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached
Institutional controls are complete and included in Appendix F of the FYR report.

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A
Remarks The DOP North tract was sold to a new owner during the FYR period. DOPSTF gave the new owner a copy of the institutional controls and discussed them with the new owner. The new owner has cleared vegetation on DOP but has not developed it. The cover remains in good condition and the gates are locked.

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident
Remarks _____

2. **Land use changes on site** ☐ N/A
Remarks None

3. **Land use changes off site** ☐ N/A
Remarks: There is increasing residential development near the Site.

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☐ N/A

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

B. Other Site Conditions

Remarks The Site is in good condition and neatly maintained.

VII. LANDFILL COVERS ☐ Applicable ☐ N/A

A. 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** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks The new owner of DOP North has cleared vegetation and the grass has regrown.

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/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____

9. **Slope Instability** □ Slide □ Location shown on site map □ No evidence of slope instability
Areal extent_____
Remarks_____

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

1. **Flows Bypass Bench** □ Location shown on site map □ N/A or okay
Remarks_____

2. **Bench Breached** □ Location shown on site map □ N/A or okay
Remarks_____

3. **Bench Overtopped** □ Location shown on site map □ N/A or okay
Remarks_____

C. Letdown Channels □ Applicable □ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

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

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

3. **Erosion** □ Location shown on site map □ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** □ Location shown on site map □ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ □ No obstructions
□ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
□ No evidence of excessive growth
□ Vegetation in channels does not obstruct flow
□ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations □ Applicable □ N/A

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

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

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

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

5. **Settlement Monuments** □ Located □ Routinely surveyed □ N/A
Remarks_____

E. Gas Collection and Treatment □ Applicable □ N/A

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

2. **Gas Collection Wells, Manifolds and Piping**
□ Good condition □ Needs Maintenance
Remarks_____

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

F. Cover Drainage Layer □ Applicable □ N/A

1. **Outlet Pipes Inspected** □ Functioning □ N/A
   Remarks_____

2. **Outlet Rock Inspected** □ Functioning □ N/A
   Remarks: Concrete pads at most outlets.

G. Detention/Sedimentation Ponds □ Applicable □ N/A

1. **Siltation** Areal extent_____ Depth_____ □ N/A
   □ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   □ Erosion not evident
   Remarks_____

3. **Outlet Works** □ Functioning □ N/A
   Remarks_____

4. **Dam** □ Functioning □ N/A
   Remarks_____

H. Retaining Walls □ Applicable □ N/A

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

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

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

1. **Siltation** □ Location shown on site map □ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** □ Location shown on site map □ N/A
   □ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

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

4. **Discharge Structure** □ Functioning □ N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS □ Applicable □ N/A

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

2. **Performance Monitoring**
Type of monitoring:
□ Performance not monitored
Frequency: _____
□ Evidence of breaching
Head differential: _____
Remarks: _____

IX. GROUNDWATER/SURFACE WATER REMEDIES □ Applicable □ N/A

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

1. **Pumps, Wellhead Plumbing, and Electrical**
□ Good condition □ All required wells properly operating □ Needs Maintenance □ N/A
Remarks: _____

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

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

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

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

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

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

C. Treatment System □ Applicable □ N/A

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

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

3. **Tanks, Vaults, Storage Vessels**
   □ N/A □ Good condition □ Proper secondary containment
   □ Needs Maintenance
   Remarks:
   _____

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

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

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

D. Monitoring Data

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

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained (NSCZ South Plume on DOP South*).
   ☐ Contaminant concentrations are declining
   Remarks: Contaminant concentrations are declining at NSCZ monitoring well DMW-35B and are currently below NSCZ standards.

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

X. OTHER REMEDIES

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

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

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

The overall goal of site operations is the containment of groundwater and air emissions from the Site. The cap system is in good condition and prevents the infiltration of surface water as well as the escape of volatile gases from the contaminated soil. The Site is secure.

The site inspection conducted March 28, 2018 indicates that the remedy is effective and operating as designed.

B.	Adequacy of O&M
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M procedures are adequate to the current and long-term protectiveness of the remedy.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. The remedy remains protective, consistent with the remedial action objectives of the response action.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None.

Brio Refining Superfund Site
Dixie Oil Processors Superfund Site
Harris County, Texas

Five-Year Review Site Inspection: March 28, 2018

Name:	Agency/Company:	E-Mail Address:
SHERELL HEIDT	TCEQ	Sherell.heidt@tceq.texas.gov.
GARY MILLER	EPA	MILLER.GARYG@EPA.GOV
David C. Abshire	USEPA	abshire.david@epa.gov
Larry Engle	DOP	–
Roger Pokluda	GSI	rjpokluda@gsi-net.com
John Dunne	BSTF	jdunne@briotrust.com
MATT FORESMAN	MONSANTO Co.	matthew.r.foresman@monsanto.com

DOP NORTH MAIN GATE

DOP NORTH MAIN GATE LOOKING SOUTHWEST

DOP NORTH MAIN GATE LOOKING NORTHEAST

DOP NORTH FENCE LINE LOOKING WEST

DOP NORTH FENCE LINE LOOKING WEST

DOP NORTH DRAINAGE ROAD LOOKING NORTHEAST

DOP NORTH COVER LOOKING NORTHWEST

DOP NORTH COVER LOOKING SOUTH

DOP NORTH DRAINAGE OUTLET TO MUD GULLY

DOP NORTH FENCELINE LOOKING NORTH

NSCZ MONITORING WELL DMW-51A-DOP NORTH

FFSZ MONITORING WELL DMW-47B- DOP NORTH

FFSZ MONITORING WELL DMW-52B AND SITE COVER- DOP SOUTH

SOUTH PLUME NSCZ GROUNDWATER RECOVERYT WELL

APPENDIX D

ARARs Identified in 1998 Record of Decision

GENERAL REQUIREMENTS

ARARs Included in 1988 ROD:

1. Standards Applicable to Generators of Hazardous Waste (40 CFR Part 262)
2. *Standards Applicable to Transporters of Hazardous Waste (40 CRF Part 263)*
3. Hazardous Materials Transportation (49 CFR Parts 107, 174-177)
4. Security (40 CFR 264.14)
5. General Requirements for Ignitable, Reactive, or Incompatible Wastes (40 CFR 264.17)
6. Disposal or Decontamination of Equipment, Structures, and Soils (40 CFR 264.114)
7. Post-Closure Care and Use of Property (40 CFR 264.117)

AIR PATHWAY

ARARs Included in 1988 ROD:

1. *Texas Clean Air Act (Section 4.01)* - the Texas Clean Air Act was amended and codified into the Texas Health and Safety Code (September 1, 1989)

SURFACE WATER PATHWAY

ARARs Included in 1988 ROD:

1. *State Water Quality Standards (31 TAC 329.41-.49, 333.17-.19) - as applied to Mud Gully* - current surface water quality standards codified as 30 TAC 307*

2. Federal Water Quality Criteria for Fresh Water Aquatic Life Protection - as applied to Mud Gully

3. Floodplain Management (Executive Order 11988)

*Texas Commission on Environmental Quality (TCEQ) promulgated new surface water standards in August 2002 under 30 TAC 307. These standards, along with calculations presented in the Texas Total Maximum Daily Load (TMDL) Program, are used as Surface Water Quality Goals for Mud Gully and Clear Creek. The original Surface Water Performance Standards continue to be used for compliance.

GROUNDWATER PATHWAY

ARARs Included in 1988 ROD:

1. Safe Drinking Water Act Primary and Secondary MCLs - as applied to the Fifty-Foot Sand

SOILS PATHWAY

ARARs Included in 1988 ROD:

1. Cap and Cover (40 CFR Part 264, Subpart N)
2. *Vault (40 CFR Part 264, Subpart N)*

Notes:

1. ARARs taken from Table 4-10 of the 1988 ROD.
2. ARARs that are no longer current under the existing remedy are shown in *italics*.

APPENDIX E

PUBLIC NOTICE AND INTERVIEW NOTES

Dixie Oil Processors, Inc.
Superfund Site
PUBLIC NOTICE
U.S. EPA Region 6 Begins Fifth Five-Year Review of Site Remedy

The U.S. Environmental Protection Agency Region 6 (EPA) has begun the Fifth Five-Year Review of the remedy for the Dixie Oil Processors, Inc. Superfund Site in Harris County, Texas. The review seeks to confirm that the cleanup conducted at the site continues to protect human health and the environment. The site, which was a former petrochemical refining facility, is located in southern Harris County at the intersection of Beamer Road and Dixie Farm Road.

Once completed, the results of the Five-Year Review will be made available to the public at the following Information Repository:

Parker Williams Library

at San Jacinto College South Campus

13735 Beamer Road

Houston, Texas 77089

Information about the Dixie Oil Processors, Inc Site is also available on the Internet at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id =0602601.

For more information about the Dixie Oil Processors, Inc Site, you may contact Gary Miller at (214) 665-8318 or by email at miller.garyg@epa.gov.

REGULATIONS GOVERNING PUBLICATION

PUBLISHER'S CERTIFICATE

STATE OF TEXAS }
COUNTY OF HARRIS } SS:

Personally appeared before the undersigned a notary public within and for said county and State, ***Marie Flickinger***, publisher of the ***South Belt-Ellington Leader,*** a newspaper published at ***11555 Beamer Road, Houston***, county of ***Harris,*** State of ***Texas,*** who, being duly sworn, states on oath that the notices of DOP Superfund Site a true copy of which is hereto annexed, was published in said newspaper in its issue of the 26th day of April, 20 18.

Acknowledgement of the publisher must be made before a notary public or other official authorized to administer oaths.

Marie Flickinger
Publisher

SUBSCRIBED AND SWORN TO before me this the 29 day of June, 2018.

K BARBOUR
Notary Public, State of Texas
Comm. Expires 06-29-2021
Notary ID 513609-7

K Barbour
Notary Public, State of Texas

My commission expires: June 29, 2021

(SEAL)

INTERVIEW RECORD			
Site Name: Dixie Oil Processors Superfund Site		**EPA ID No.:** TXD089793046	
Subject: Fifth Five-Year Review		**Time:**	**Date:**
Type: Telephone Visit ☒Other (Email) **Location of Visit:** Via Email		Incoming Outgoing	
Contact Made By:			
Name: Gary Miller	**Title: Remedial Project Manager**	**Organization: US EPA**	
Individual Contacted:			
Name: Sherell Heidt	**Title: Project Manager**	**Organization: TCEQ**	
Telephone No: 713-767-3708 **Fax No:** **E-Mail Address: Sherell.heidt@tceq.texas.gov**		**Street Address: 5425 Polk St, Ste H** **Houston, TX 77023-1452**	

Summary Of Conversation (Via Email)

What is your overall impression of the project? (general sentiment)
RESPONSE: The Dixie Oil Processors Superfund site is well maintained. In 2015, the Project Review Group responsible for monitoring the implementation of the Wetland Creation Project south of the site certified the project was successfully achieved and maintained.

Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by regarding the site? If so, please give purpose and results.
RESPONSE: No.

Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? give details of the events and results of the responses.
RESPONSE: No.

Do you feel well informed about the site's activities and progress?
RESPONSE: Yes. The TCEQ attends quarterly meetings, in which Site activities are discussed.

Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
RESPONSE: The TCEQ supports the Brio Site Task Force investigations of the identified south plume of 1,2 dichloroethane and vinyl chloride located on the adjacent Brio site property. The TCEQ supports the DOP Site Task Force efforts in confirming the south plume does not impact the protectiveness of the DOP remedy.

I consent to EPA publishing the information on this form. Signed:  Date: 7/26/2018

INTERVIEW RECORD

Site Name: Dixie Oil Processors Superfund Site		**EPA ID No.: TXD089793046**
Subject: Fifth Five-Year Review		**Time:** **Date:**
Type: Telephone Visit ☒Other (Email) **Location of Visit:** Via Email		Incoming Outgoing

Contact Made By:

Name: Gary Miller	**Title: Remedial Project Manager**	**Organization: US EPA**

Individual Contacted:

Name: MARK Flickinger	**Title:** CAG Rep	**Organization:**
Telephone No: 281-481-5656 **Fax No:** **E-Mail Address:** myNews@southbeltleader.com	**Street Address:** 11555 Beaver	

Summary Of Conversation (Via Email)

What is your overall impression of the project? (general sentiment)
RESPONSE: ~~was~~ was Choosen – It appears OK

Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by regarding the site? If so, please give purpose and results.
RESPONSE: This is not typical Superfund but We have been kept well informed – am Thankful for deed restriction imposed

Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? give details of the events and results of the responses.
RESPONSE:
not to my knowledge Except from land owner.

Do you feel well informed about the site's activities and progress?
RESPONSE:
Yes

Do you have any comments, suggestions, or recommendations regarding the site's management or operation?
RESPONSE:
Keep Deed restrictions in place

I consent to EPA publishing the information on this form. Signed: Marie Flick Date: 7-17-18

APPENDIX F

INSTITUTIONAL CONTROLS

875-05-1230

HOLD FOR TEXAS AMERICAN TITLE COMPANY

Y730709
08/30/05 200944471 $56.00

GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS

STATE OF TEXAS §
§ KNOW ALL BY THESE PRESENTS THAT:
§
HARRIS COUNTY §

THIS GRANT OF ENVIRONMENTAL DEED RESTRICTIONS AND RIGHT OF ACCESS is granted by **RALPH LAWRENCE LOWE, JR.** ("Grantor") in favor of **UMB Bank N.A.**, a national banking association, as Trustee for the Brio Site Trust, in its fiduciary and not in its individual capacity ("Grantee"), as the owner of the Benefited Property (hereinafter defined).

RECITALS

A. Grantor is the owner of the real property referred to as the Dixie Oil Processors Superfund Site, being comprised of two tracts of land in Harris County Texas, being that certain real property more particularly described on Exhibit A attached hereto and made a part hereof (the "DOP North Tract") and that certain real property more particularly described on Exhibit B attached hereto and made a part hereof (the "DOP South Tract"). The DOP North Tract and the DOP South Tract are sometimes collectively referred to herein as the "DOP Site."

B. Grantee is the owner of certain real property adjacent to and/or in the vicinity of the DOP Site, which property is more particularly described in Exhibit C attached hereto and made a part hereof (the "Benefited Property").

C. The DOP Site is the subject of a response action under the jurisdiction of the United States Environmental Protection Agency ("EPA") pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended ("CERCLA"), 42 U.S.C. § 9601 *et seq.*, and the National Contingency Plan, 40 C.F.R. § 300.400 *et seq.*

D. Pursuant to section 105 of CERCLA, EPA placed the DOP Site on the National Priorities List, set forth at 40 C.F.R. Part 300, on October 4, 1989.

E. The EPA issued Record of Decision R06-88/032 for the DOP Site on March 31, 1988 (the "1988 ROD").

F. In accordance with the terms of the 1988 ROD and a Unilateral Order dated July 10, 1991, remedial action was conducted at the DOP Site (the "Remedial Action") by those parties listed on Exhibit D attached hereto and made a part hereof or their predecessors or successors-in-interest (the "DOP Settlers").

G. Pursuant to the terms of that certain Consent Decree between the United States and Ralph L. Lowe, the then owner of the DOP Site, entered on December 28, 1992 (the "Lowe Consent Decree"), the owner of the DOP Site agreed to place certain restrictions on the use of the DOP

Site and to grant certain rights of access in order to maintain the integrity and effectiveness of the Remedial Action.

GRANT

NOW, THEREFORE, in consideration of the agreements reached in the Lowe Consent Decree and other good and valuable consideration, the receipt and sufficiency of which are acknowledged, Grantor covenants with the Grantee, EPA and their assigns, that he has the right to convey the easements, rights, obligations, covenants, and restrictions (collectively, the "Deed Restrictions") set forth herein, and Grantor further covenants with Grantee, EPA and their assigns that Grantor, his executors, heirs, successors and assigns will warrant and forever defend the same unto Grantee and its assigns forever against any person whomsoever claiming or to claim the same; and Grantor grants the Deed Restrictions in favor of Grantee and its assigns on the following terms and conditions:

1. Right of Access. Grantor hereby grants Grantee and its assigns a perpetual right of access in, on, upon, over, and through the DOP Site for the purposes of: implementing, overseeing, operating, maintaining, and monitoring the remedial activities relating to the DOP Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP Site.

2. Scope of Restrictions. These Deed Restrictions affect the entire tracts or parcels of real property owned by Grantor as described in Exhibit A attached hereto and made a part hereof (the "DOP North Tract") and Exhibit B attached hereto and made a part hereof (the "DOP South Tract"). The property affected by this Deed Restriction, which is the combination of the DOP North Tract and the DOP South Tract, and collectively constitute the DOP Site is sometimes referred to herein as the "Restricted Property."

3. Information Concerning Site Condition. The grantors of Grantee, which consist of the DOP Settlers, performed a remediation of the Restricted Property and the adjacent Brio Superfund Site. Information about the known waste constituents that have been left in place on the Restricted Property is attached hereto as Exhibit E and is made part of this filing. Further information concerning this matter may be found by an examination of the EPA's Dixie Oil Processors, Inc. Superfund Site Administrative Record at EPA Region 6, 1445 Ross Avenue, Dallas, Texas, 75202, and at the San Jacinto College-South Campus, 13735 Beamer Rd., Houston, Texas, 77089.

4. EPA Authority. EPA derives its authority to protect the environment and to review the remediation of the DOP Site from Section 101, *et seq.*, of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, ("CERCLA"), 42 U.S.C. § 9601, *et seq.*, and 40 C.F.R. Part 300. In accordance with this authority, EPA requires Grantor, as the owner of the Restricted Property, to provide the United States and its representatives access to the Restricted Property for the purposes of conducting any activity related to the Remedial Action and the Lowe Consent Decree. Under the Lowe Consent Decree, the then owner of the DOP Site, Ralph L. Lowe, agreed to comply with any requirements in the Record of Decision for the DOP Site applicable to owners of any portion of the DOP Site. The

1988 ROD and the Lowe Consent Decree recognized that permanent site control, including the imposition of necessary deed notices and restrictions (if possible) and restriction of access to the DOP Site, would be necessary. The 1988 ROD and the Lowe Consent Decree also required long term, effective site control. Effective controls for the Restricted Property are described in Exhibits F and G attached hereto and made a part hereof.

5. TCEQ Authority. TCEQ derives its authority to investigate conditions on the Restricted Property from Texas Health and Safety Code, § 361.002, which enables TCEQ to promulgate "closure and remediation" standards for hazardous waste sites to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §§ 5.012 and 5.013, Texas Water Code, Annotated, Chapter 5, TCEQ is given primary responsibility for implementing the laws of the State of Texas relating to water and to adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, TCEQ requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation.

6. Effect of Deed Restrictions. These Deed Restrictions do not constitute a representation or warranty by EPA nor TCEQ of the suitability of this land for any purpose, nor do they constitute any guarantee by EPA or TCEQ that the remediation standards specified herein have been met by the DOP Settlers.

7. Restrictions on Use. Contaminants and waste deposited hereon have been remediated to meet nonresidential (i.e., industrial/commercial) soil criteria in accordance with a plan designed to meet the requirements of the 1998 ROD; 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce, to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care or engineering and institutional control measures in accordance with the risk reduction standards applicable at the time of this filing. Future use of the DOP North Tract is limited as described in Exhibit F. Future use of the DOP South Tract is limited as described in Exhibit G. Institutional or legal controls placed on the Restricted Property to ensure appropriate future use include the Lowe Consent Decree and these Deed Restrictions. The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the statutory authority of EPA and TCEQ.

8. Additional Information. The current owner of the Restricted Property is Ralph Lawrence Lowe, Jr. and the address, where more specific information may be obtained is set forth in Section 3 above.

9. Provisions to Run with the Land. These Deed Restrictions set forth rights, liabilities, agreements, and obligations upon and subject to which the Restricted Property, or any portion thereof, shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, or conveyed. The rights, liabilities, agreements, and obligations herein set forth shall run with the Restricted Property, as applicable thereto, and any portion thereof, and shall inure to the benefit of the Grantee and EPA, as third party beneficiary, and their successors and be binding

upon Grantor and all parties claiming by, through or under Grantor. The rights hereby granted to the Grantee, and its successors and assigns, include the right of Grantee and EPA, as third party beneficiary, to enforce these Deed Restrictions.

10. Grantor Concurrence. Grantor and all parties claiming by, through, or under Grantor covenant and agree with the provisions herein set forth and agree for and among themselves and any party claiming by, through or under them, and their respective agents, contractors, subcontractors and employees, that the Deed Restrictions herein established shall be adhered to and not violated and that their respective interests in the Restricted Property shall be subject to the provisions herein set forth.

11. Incorporation into Deeds, Mortgages, Leases and Instruments of Transfer. Grantor hereby agrees to incorporate this Deed Restriction fully or by reference, into all deeds, easements, mortgages, deeds of trust, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Restricted Property, or any portion thereof, is conveyed. Any transfer of the Restricted Property, or any portion thereof, shall take place only if the grantee agrees, as a part of the agreement to purchase or otherwise obtain an interest in the Property, that it will comply with the obligations of the Grantor to provide access and/or institutional controls, as set forth in these Deed Restrictions, with respect to such Restricted Property.

12. Severability. If any court or other tribunal determines that any provision of these Deed Restrictions is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from these Deed Restrictions as though it had never been included herein. In either case, the remaining provisions of these Deed Restrictions shall remain in full force and effect.

13. Governing Law. It is expressly agreed that the law of the State of Texas is the law governing these Deed Restrictions and any disputes regarding its contents and interpretation.

14. Binding Effect. The covenants, terms, conditions, and restrictions of these Deed Restrictions shall be binding upon the Grantor and his personal representatives, heirs, successors, and assigns, and shall continue as a servitude running into perpetuity with the Restricted Property.

15. Captions. The captions in this instrument have been inserted solely for convenience of reference and are not part of this instrument and shall have no effect upon construction or interpretation.

16. Notices. Any notice required hereunder shall be in writing and shall be delivered by hand, reputable overnight carrier, or certified mail, return receipt requested as follows:

To Grantor:

Ralph Lawrence Lowe, Jr.
3009 Green Tee
Pearland, Texas 77581

To Grantee:

UMB, N.A., as Trustee for the Brio Site Trust

Corporate Trust Division
Attn: Robert Clasquin
2 South Broadway, Suite 435
St. Louis, MO 63102-1713

with a copy to:

Baker Botts L.L.P.
Attn: Aileen Hooks
98 San Jacinto Blvd., Suite 1500
Austin, Texas 78701-4039

To EPA:

Office of Regional Counsel
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733

All notices shall be deemed effective three (3) business days after delivery by the means set forth above. Grantor, Grantee or EPA (or any of their respective successors) may change its address for by written notice to the others (or their respective successors).

EXECUTED this the 19 day of August, 2005.

RALPH LAWRENCE LOWE, JR.

AGREED:

UMB, N.A., as Trustee for the Brio Site Trust
in its fiduciary and not in its individual capacity

By: _____

Name: Robert Clasquin
Title: Vice President

STATE OF TEXAS §
§
COUNTY OF Brazoria §

BEFORE ME, on this the 19th day of August, 2005, personally appeared **Ralph Lawrence Lowe, Jr.** 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 therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 19th day of August, 2005.

JOI L. CAMPBELL
NOTARY PUBLIC
State of Texas
My Commission Expires July 24, 2007

_____
Notary Public in and for the State of Texas

EXHIBIT A

DOP NORTH TRACT

The legal description of real property owned by Ralph Lawrence Lowe, Jr. and known for purposes of this Deed Restriction as the DOP North Tract is presented as follows:

All of Lot 54 and a portion of Lots 52 and 53 in the George W. Jenkins subdivision, W.D.C. Hall League, according to the plat recorded in Volume 2, page 52, Harris County Map Records, and further described as follows:

Beginning at the West corner of Lot 54; THENCE N45°E along the Northwest line of Lots 54 and 53 and along the Southeast line of a 30-foot county road, a distance of 553.96 feet; THENCE in an Easterly direction across Lots 52 and 53 along the centerline of a drainage easement from Hard-Lowe Chemical Company to the City of Houston, as per record in Volume 6597, page 245, of Harris County records; THENCE S45°W along the Northwest right-of-way line of Choate Road, now known as Dixie Farm Road, to the South corner of Lot 54; THENCE Northwest along the Southwest line of Lot 54, a distance of 1022.65 feet to the point of beginning.

* * * * *

EXHIBIT B

DOP SOUTH TRACT

The legal description of real property owned by Ralph Lawrence Lowe, Jr. and known for purposes of this Deed Restriction as the DOP South Tract is presented as follows:

A tract out of Lot 67 of a subdivision of 2069 acres land out of the Perry and Austin League and the Thomas Labor, according to the map recorded in Volume 3, page 6, of the Harris County Map Records, and further described as follows:

Commencing at the North corner of Lot 67, said beginning point lying in the centerline of Choate Road, 86-foot right-of-way; THENCE. S45°00'00"E, along the Northeast line of Lot 67, a distance of 56.00 feet to the Southeasterly right-of-way line of Choate Road; THENCE S45°00'00"W, along the Southeasterly right-of-way line of Choate Road, a distance of 61.73 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner S45°00'00"E, parallel to the Northeast line of Lot 67, a distance of 281.47 feet to a point for corner; THENCE N45°12'50"E, a distance of 61.73 feet to a point for corner in the Northeast line of Lot 67; THENCE S45°00'00"E, along the Northeast line of Lot 67, a distance of 438.22 feet to a point for corner in an existing fence line; THENCE along said fence line with the following meanders; S45°00'14"W, a distance of 100.00 feet; S46°07'54"W, a distance of 300.06 feet; S87°19'06", a distance of 87.64 feet; S88°15'55"W, a distance of 87.54 feet to a point for corner in the Northeast line of drainage easement conveyed to Harris County Flood Control District, said point also being located in a curve of said easement; THENCE in a Northwesterly direction, along said drainage easement, around a curve to the left, having a radius of 483.10 feet, a distance of 104.16 feet to the P.T. for the curve; THENCE N17°17'55"W, a distance of 79.84 feet to the P.C. of curve; THENCE, in a Northwesterly direction, around said curve to the left, having a radius of 483.10 feet, a distance of 423.55 feet to the P.T. of the curve; THENCE N67°31'55", a distance of 26.59 feet to a point for corner, being the intersection of the said drainage easement with the Southeast right-of-way line or Choate Road; THENCE N45°00'00"E, parallel to Northeast line of Lot 67, a distance of 359.69 feet to the place of beginning and containing 6.55014 acres (285,324 square feet) more or less.

Also a tract of Northwest 1/2 of Lot 71, of a subdivision of 2069 acres of land out of the Perry and Austin League and the Thomas Labor, according to the plat recorded in Volume 3, page 6 of the Map Records of Harris County, and further described as follows:

Commencing at the West corner of Lot 71, said point lying in the centerline of Choate Road, 60-foot right-of-way; THENCE. S45°00'00"E, along the Southwest line of Lot 71, a distance of 337.70 feet to the place of beginning of the tract hereinafter described; THENCE from said beginning corner, continuing S45°00'00"E, along the Southwest line of Lot 71, a distance of 322.30 feet to a

point for corner being the South corner of the West 1/2 of Lot 71; Thence N45°00'00"E, along the Southeast line of the Northwest 1/2 of Lot 71, a distance of 104.65 feet to a point for corner; THENCE N41°34'10"W, a distance of 70.00 feet to a point for corner; THENCE S48°25'50"W, a distance of 17.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 35.00 feet to a point for corner; THENCE N48°25'50"E, a distance of 3.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 6.00 feet to a point for corner, THENCE N48°25'50"E, a distance of 14.00 feet to a point for corner; THENCE N41°34'10"W, a distance of 156.46 feet to a point for corner; THENCE S48°25'50"W, a distance of 79.73 feet to a point for corner; THENCE N40°39'10"W, a distance of 50.53 feet to a point for corner; THENCE S45°12'50"W, a distance of 44.89 feet to the place of beginning and containing 0.73352. acres (31,952 square feet), more or less.

* * * * *

EXHIBIT C

THE BENEFITED PROPERTY

BRIO SUPERFUND SITE
2.1485 ACRES
PERRY AND AUSTIN LEAGUE A-55
PAGE 1 OF 1

Being a tract or parcel of land containing 2.1485 acres (93,588 square feet), located in the Perry and Austin League, Abstract No. 55, Harris County, Texas, and being out of a called 9.099 acre tract described in deed executed May 19, 2002 from First Baptist Church of Dallas Undivided 1/6th Interest to UMB Bank, N.A., Trustee of the Brio Site Trust recorded under Harris County Clerks File (HCCF) No. V822181 of the Official Public Records of Real Property, Harris County, Texas (OPRRPHCT). Said 2.1485 acre tract being more particularly described as follows:

Bearings shown hereon are based upon the Texas State Plane Coordinate System, South Central Zone and are Based upon the 1968 USC&GS adjustment of the North American Datum of 1927. Based upon City of Houston Monument 5850-0802.

COMMENCING at a three-quarter inch iron rod, found at the intersection of the existing southeasterly right-of-way line of Dixie Farm Road (width varies) and the southwesterly right-of-way line of Beamer Road (width varies);

THENCE, South 42° 05' 00" West, along said existing southeasterly right-of-way line of Dixie Farm Road a distance of 630.00 feet to a three-quarter inch iron rod, found for the southwesterly corner of said 9.099 acre tract;

THENCE, South 48° 27' 39" East, departing said existing southeasterly right-of-way line of Dixie Farm Road along the southwesterly property line of said 9.099 acre tract a distance of 24.15 feet to the intersection with a six foot chain link fence and POINT OF BEGINNING of the herein described tract;

THENCE, North 41° 39' 21" East, along said six foot chain link fence a distance of 151.50 feet to an angle point;

THENCE, South 49° 04' 25" East, continuing along said six foot chain link fence a distance of 181.55 feet to an angle point;

THENCE, South 48° 51' 56" East, continuing along said six foot chain link fence a distance of 349.87 feet to an angle point;

THENCE, South 51° 59' 12" East, continuing along said six foot chain link fence a distance of 75.30 feet to the intersection with the southeasterly property line of said 9.099 acre tract;

THENCE, South 42° 05' 08" West, along said southeasterly property line of the 9.099 acre tract a distance of 160.55 feet to a five-eighths inch iron rod with "Baseline Corp." cap, found for the southeasterly corner of the 9.099 acre tract;

THENCE, North 48° 27' 39" West, along said southwesterly property line of the 9.099 acre tract a distance of 605.34 feet to the POINT OF BEGINNING and containing 2.1485 acres (93,588 square feet) of land.

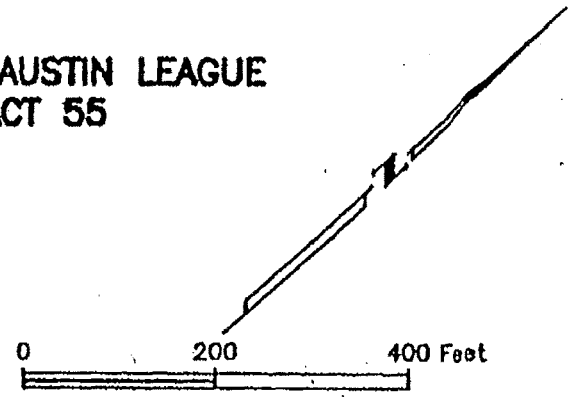
This description is based upon a survey performed by J. Patrick Going, Registered Professional Land Surveyor, Texas Registration Number 4477, completed November 05, 2004, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.34.

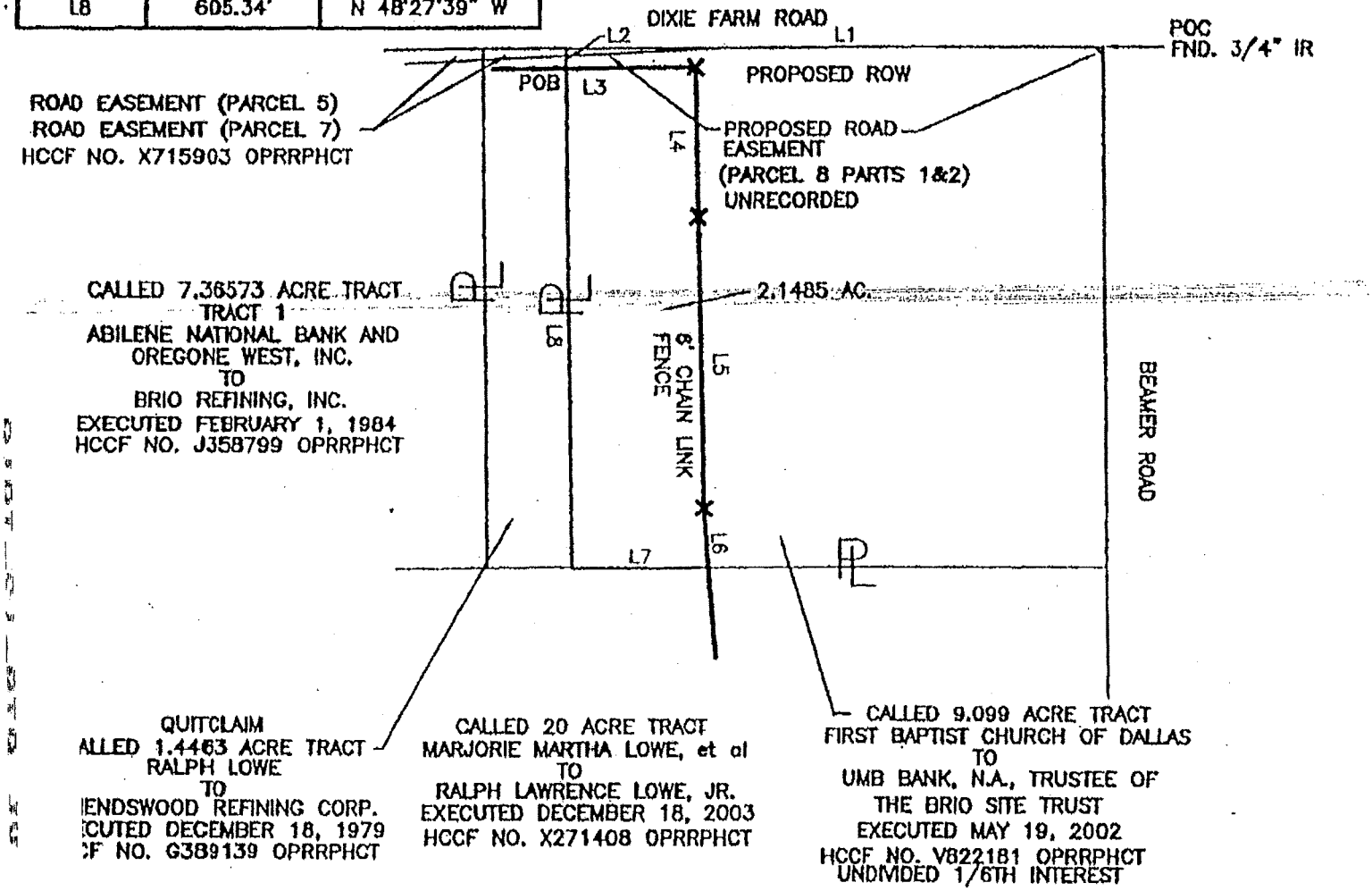
November 5, 2004
CKT:bgb
Job No. 85.044.34
File No. 8504434\WPM&B-DES-2-1485 ACRES

STATE OF TEXAS
REGISTERED
J. PATRICK GOING
4477
PROFESSIONAL
LAND SURVEYOR
11/05/04

LINE	DISTANCE	BEARING
L1	630.00'	S 42°05'00" W
L2	24.15'	S 48°27'39" E
L3	151.50'	N 41°39'21" E
L4	181.55'	S 49°04'25" E
L5	349.87'	S 48°51'56" E
L6	75.30'	S 51°59'12" E
L7	160.55'	S 42°05'08" W
L8	605.34'	N 48°27'39" W

PERRY AND AUSTIN LEAGUE
ABSTRACT 55





NOTES

1) BEARINGS SHOWN HEREON ARE BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE AND ARE BASED UPON THE 1968 USC&GS ADJUSTMENT OF THE NORTH AMERICAN DATUM OF 1927. BASED UPON CITY OF HOUSTON MONUMENT 5850-0802.

2) A METES AND BOUNDS DESCRIPTION BASED UPON A SURVEY PERFORMED BY J. PATRICK GOING, REGISTERED PROFESSIONAL LAND SURVEYOR, TEXAS REGISTRATION NUMBER 4477, COMPLETED NOVEMBER 5, 2004, AND IS ON FILE IN THE OFFICE OF BASELINE CORPORATION, HOUSTON, TEXAS. JOB NUMBER 85.044.34

EXHIBIT

2.1485 ACRES
93,588 SQ. FT.
BEING OUT OF
A CALLED 9.099 ACRE TRACT
IN THE
PERRY AND AUSTIN LEAGUE, A-55
HARRIS COUNTY, TEXAS

BASELINE CORPORATION
PROFESSIONAL SURVEYORS
1708 SEAMIST DRIVE, SUITE 2500, HOUSTON, TEXAS 77008
PHONE (713) 869-0156 FAX (713) 869-154

Scale : 1" = 200'	Job No. : 85.044.34
Date : 11/12/2004	FB No. : X-405
Drawn by : CKT	Approved by : JPG

34.523 ACRES
(1,503,831 SQUARE FEET)

W.D.C. HALL LEAGUE
ABSTRACT NO. 23

State of Texas

County of Harris

Being a tract or parcel of land containing 34.523 acres (1,503,831 square feet), located in the W.D.C. Hall League, Abstract No. 23, Harris County, Texas, and being all of Southbend Section Three, Partial Replat as recorded under Film Code No. 380143 of the Harris County Map Records (HCMR), furthermore being a part of Southbend Section Two, Partial Replat as recorded under Film Code No. 380140 of said HCMR, and all of a certain called 2.736 acre tract of land conveyed by Southbend Properties, Inc. to Beamer Road Management Company by deed executed September 26, 1997 as filed for record under Harris County Clerk's File (HCCF) No. S659057 of the Official Public Records of Real Property of Harris County, Texas (OPRRPHCT). Said 34.523 acre tract being more particularly described by metes and bounds as follows:

All bearings are based upon the southeasterly line of said Partial Replat of Southbend Section Three.

BEGINNING at a 5/8-inch iron rod found for the most easterly corner of said 2.736 acre tract, being on the southwesterly right-of-way line of Beamer Road (100 feet wide), same being on the northwesterly line of a 30 foot wide road easement (unopened) dedicated to the public by the plat of Geo. W. Jenkins Subdivision as recorded in Volume 2, Page 52 of said HCMR;

THENCE, South 45 degrees 27 minutes 27 seconds West, departing the southwesterly right-of-way line of said Beamer Road and along the southeasterly line of said 2.736 acre tract, at a distance of 309.66 feet passing the most southerly corner thereof, and continuing along the southeasterly line of the aforementioned Southbend Section Three, Partial Replat for a total distance of 2423.79 feet to a 5/8-inch iron rod set for corner on the easterly line of Mud Gully (HCFCD Unit A120-00-00, 190 feet wide), dedicated per plat of Sagebend Section Three as recorded in Volume 298 Page 5 of said HCMR;

THENCE, South 82 degrees 50 minutes 32 seconds West, departing said southeasterly line of Southbend Section Three, Partial Replat and along the most easterly line of Mud Gully, same being the most westerly line of said Southbend Section Three, Partial Replat, a distance of 102.98 feet to a 5/8-inch iron rod set for the point of curvature of a curve to the right;

THENCE, in a northwesterly direction continuing along said common line of Mud Gully and Southbend Section Three, Partial Replat, with said curve to the right having a central angle of 75 degrees 52 minutes 54 seconds, a radius of 245.89 feet, a long chord length of 302.37 feet, bearing North 59 degrees 12 minutes 59 seconds West, a distance along the arc of 325.65 feet to a 5/8-inch iron rod found for the point of tangency;

THENCE, North 21 degrees 16 minutes 29 seconds West, continuing along said common line, a distance of 84.49 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 12 degrees 59 minutes 37 seconds West, continuing along said common line, a distance of 183.20 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 00 degrees 47 minutes 45 seconds West, continuing along said common line, a distance of 75.12 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 18 degrees 38 minutes 50 seconds East, continuing along said common line, a distance of 170.74 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 14 degrees 37 minutes 08 seconds West, continuing along said common line, a distance of 227.76 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 60 degrees 31 minutes 52 seconds West, continuing along said common line of Mud Gully and Southbend, Section Three, Partial Replat, a distance of 82.00 feet to a 5/8-inch iron rod set for corner on the common line between the aforementioned Southbend Section Two Partial Replat and Southbend Section Three Partial Replat;

THENCE, North 32 degrees 16 minutes 12 seconds East, departing said easterly line of Mud Gully and continuing along said common line of Southbend Section Two, Partial Replat, and Southbend Section Three, Partial Replat, a distance of 204.48 feet to a 5/8-inch iron rod set for corner, from which a ½-inch iron rod found bears North 22 degrees 07 minutes East, a distance of 0.83 feet;

THENCE, South 60 degrees 01 minutes 13 seconds East, continuing along said common line, a distance of 402.87 feet to a 5/8-inch iron rod set for corner, from which a ½-inch iron rod found bears South 87 degrees 22 minutes East, a distance of 0.77 feet;

THENCE, North 29 degrees 58 minutes 47 seconds East, along the northerly line of a storm sewer access easement as shown on the aforementioned Southbend Section Two Partial Replat, a distance of 135.00 feet to a drill hole set in concrete for the point of curvature of a curve to the left;

THENCE, in a northwesterly direction along the northerly line of said storm sewer access easement with said curve to the left having a central angle of 85 degrees 28 minutes 30 seconds, a radius of 10.00 feet, a long chord length of 13.57 feet, bearing North 12 degrees 45 minutes 28 seconds West, and a distance along the arc of 14.92 feet to a drill hole set in concrete for the end of curve;

THENCE, North 29 degrees 58 minutes 47 seconds East, continuing along the northerly line of said storm sewer access easement, as shown on Southbend Subdivision, Section Two, Partial Replat, a distance of 30.03 feet to a 5/8-inch iron rod set for corner;

THENCE, South 60 degrees 01 minutes 13 seconds East, along the easterly line of said storm sewer access easement, a distance of 178.92 feet to a 5/8-inch iron rod set for corner on the aforementioned common line between Southbend Section Two, Partial Replat and Southbend Section Three, Partial Replat;

THENCE, North 29 degrees 58 minutes 47 seconds East, along said common line, a distance of 64.32 feet to a 5/8-inch iron rod found for angle point;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 859.52 feet to a 5/8-inch iron rod set for corner, from which a 5/8-inch iron rod found bears North 44 degrees 33 minutes East, a distance of 1.30 feet. Said set iron rod being on the westerly line of a certain called 2.750 acre tract as conveyed by Roosevelt Bank to Roosevelt Texas Holding Company, Inc. by deed executed November 10, 1994 as recorded under HCCF No. R157895 of said OPRRPHCT, said 2.750 acres is also called Olcott Gas Unit No. 2 Drill Site according to plat recorded under Volume 332, Page 146 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, along the common line of said 2.750 acre tract and the aforementioned Southbend Section Three, Partial Replat, a distance of 110.00 feet to a 5/8-inch iron rod set for corner;

THENCE, North 45 degrees 27 minutes 27 seconds East, along said common line, a distance of 328.94 feet to a 5/8-inch iron rod set for corner on the northwesterly right-of-way line of South Hill Drive (60 feet wide) as shown on the original plat of Southbend Section Three as recorded in Volume 304, page 64 of said HCMR;

THENCE, South 45 degrees 13 minutes 30 seconds East, departing the northwesterly right-of-way line of said South Hill Drive, a distance of 60.00 feet to a 5/8-inch iron rod set for corner on the southeasterly right-of-way line of said South Hill Drive, same being the northerly line of said Southbend Section Three, Partial Replat;

THENCE, North 45 degrees 27 minutes 27 seconds East, along the southeasterly right-of-way line of said South Hill Drive, at a distance of 70.36 feet passing the northwesterly corner of the aforementioned 2.736 acre tract and continuing for a total distance of 370.03 feet to a 5/8-inch iron rod found for cut-back corner on the northerly line of the aforementioned 2.736 acre tract;

THENCE, South 89 degrees 53 minutes 01 seconds East, with said cut-back, a distance of 14.21 feet to a 5/8-inch iron rod found on the southwesterly right-of-way line of Beamer Road (100 feet wide);

THENCE, South 45 degrees 13 minutes 30 second East, along the common line of said Beamer Road and said 2.736 acre tract, a distance of 375.03 feet to the POINT OF BEGINNING and containing 34.523 acres (1,503,831 square feet);

This description is based on a Land Title Survey and Plat by J. Patrick Going, Registered Professional Land Surveyor, License Number 4477, completed April 30, 1998, and is on file in the office of Baseline Corporation, Houston, Texas, Job No. 85.044.13

April 30, 1998
LRB:bgb
Job No. 85.044.13
File: BLACAD\85044\85044\WP\M&B-DES

EXHIBIT D

DOP SETTLERS

The Dow Chemical Company

Lyondell Chemical Company
(as successor to ARCO Chemical Company)

Merichem Company

Pharmacia Corporation
(formerly Monsanto Company)

Rohm and Haas Companies

* * * * *

EXHIBIT E

KNOWN WASTE CONSTITUENTS LEFT IN PLACE

The following primary constituents, along with other unlisted constituents, are known to be left in place at the Restricted Property:

1. copper
2. ethylbenzene
3. hexachlorobenzene
4. phenanthrene
5. 1, 2 dichloroethane
6. 1, 1, 2 trichloroethane
7. vinyl chloride

* * * * *

EXHIBIT F

DOP NORTH TRACT SITE RESTRICTIONS

Any use of the DOP North Tract shall strictly adhere to the following restrictions, limitations, and reserved rights:

1. The DOP North Tract shall not be used for any of the following activities or purposes:

   a. animal grazing;

   b. animal husbandry;

   c. hay or crop production and harvesting::

   d. any other agricultural activity;

   e. any other commercial activity other than an Approved Limited Use;

   f. installation and operation of any groundwater wells other than monitoring or recovery wells required in connection with remediation or environmental monitoring activities;

   g. installation and operation of disposal wells;

   h. any human habitation or residence, either temporary or permanent;

   i. recreational, hunting, fishing, hiking, exercising, and athletic activities;

   j. drilling, mining, seismic exploration, surface construction with the intent to drill or mine,

   k. or any other similar surface or subsurface activity;

   l. blasting or any other use of explosives; or

   m. any casual pursuit of activity other than an Approved Limited Use.

2. Other than an Approved Limited Use that strictly conforms with the requirements below, the DOP North Tract shall only be used for such uses and activities as may be required or permitted pursuant to an Order issued by the United States Environmental Protection Agency ("EPA").

3. The owner of the DOP North Tract shall allow the Grantee, the EPA, and state and local governmental agencies with authority over environmental matters access to DOP North Tract for the purposes of implementing, overseeing, operating, maintaining, and monitoring the remedial

activities relating to the DOP Site and the Brio Superfund Site, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP North Tract, and such access and actions shall not be deemed to be a violation of these Restrictions.

4. Subject to strict compliance with paragraph 4 through 10 of this Exhibit, the DOP North Tract may be used for a Park 'N Ride Facility for a metropolitan transit authority ("Designated Approved Limited Use") or such other limited commercial or industrial purposes as may be approved by EPA and the Grantee as set forth herein ("Other Approved Limited Uses") (hereinafter "Designated Approved Limited Use" and "Other Approved Limited Uses" are referred to as "Approved Limited Uses"); provided any such limited use shall not disturb the integrity or the stability of the remedy for the DOP Site and the Brio Superfund Site, disturb the integrity of or impair access by the Grantee, its agents, or any governmental agency to any hazardous waste containment or monitoring system located on or adjacent to the DOP North Tract, or otherwise damage any monitoring well or security for any monitoring well (e.g., locking covers and protective posts) located on the DOP Site.

5. The surface of that portion of the DOP North Tract to be used for an Approved Limited Use must be paved and the installation of any such paving must be performed without excavating existing soils at the DOP North Tract, it being understood that any site leveling required in connection with such paving shall be accomplished by bringing clean fill material to the site. No utilities, pipelines, or appurtenances that penetrate the soil cover at the DOP Site may be installed except in strict accordance with a detailed plan approved in writing by the EPA, which plan must include worker protection measures to be put in place, provide for proper characterization and disposal of any materials generated as a result of such activity, and include measures to avoid compromising the existing soil cover for the DOP North Tract.

6. The owner of the DOP North Tract must notify and obtain written approval from the Grantee and the EPA of any proposed Approved Limited Use other than a Designated Approved Limited Use. The review by the EPA and the Grantee shall be limited to a consideration of whether the proposed use would be inconsistent with the intent and purpose of these Deed Restrictions. In no event shall any of the following be considered an Approved Limited Use: Day care facilities, hospitals or health care facilities, schools, bus stops for school children, parks or other recreational facilities, restaurants or retail establishments, churches or other places of worship, agricultural or horticultural uses, office uses, warehouse uses, fuel storage or fueling facility uses, solid or hazardous waste treatment, storage or disposal facilities or any facility at which the same person would be expected to be present at the site for any extended period of time on a regular basis. A person's temporary presence at the DOP North Tract during the course of normal transit shall not be considered an "extended period of time."

7. The owner of the DOP North Tract shall provide to the Grantee and the EPA copies of any and all engineering and construction drawings, plans and specifications relating to any Approved Limited Use (the "Plans"), including any modifications to any Approved Limited Use, at least 45 days' prior to taking any action to implement the Plans. The owner of the DOP North Tract shall not conduct or suffer or allow any person to conduct any activity that disturbs the soil at the DOP North Tract without first submitting a Plan for such activity to Grantee and the EPA and receiving EPA's written approval of the Plan. Grantee shall have the right, but not the

obligation, to review and provide comments on each Plan. EPA, and the Grantee if it chooses to comment, shall provide written comments on a Plan within 30 days of receipt of the Plan. EPA, and, if applicable, Grantee will review each Plan for the limited purpose of evaluating whether implementation of the Plan could adversely impact the remedy for the DOP Site or the Brio Superfund Site or otherwise conflict with these Deed Restrictions, and may consider, among other things, the possible impact of implementation of the Plan on the subsurface of the DOP Site, the cover for any contamination left in place, any containment or monitoring system on the DOP Site or the Brio Superfund Site, or any other potential adverse impact on the remedy. The owner of the DOP North Tract shall address, or cause to be addressed, comments on a Plan made by EPA and Grantee, if applicable, to the satisfaction of EPA and Grantee, and the owner shall conduct all construction activity and site work related to an Approved Limited Use strictly in accordance with the Plan, as approved by EPA.

8. The owner shall allow the EPA and/or the Grantee to observe any activities relating to the construction, maintenance, or use of any improvements at the DOP North Tract. The EPA or Grantee may object to and order immediate cessation of the activity if, in its sole judgment, it determines that the activity violates these Restrictions.

9. The owner of the DOP North Tract, at its sole cost and expense, shall arrange for the characterization and proper disposal of any wastes generated in connection with any Approved Limited Use, including related construction activities, in accordance with all applicable laws.

10. Failure of Grantor, its successors or assigns to strictly adhere to the foregoing procedures and requirements relating to Approved Limited Uses shall be grounds for the Grantee or EPA to require that the Grantor or then owner of the DOP North Tract immediately cease or take such actions as are needed to cease such use and/or modify or remove any improvements (including any buildings, structures, roads, driveways, and paved parking areas and appurtenances) placed on the DOP North Tract in violation of the Restrictions. Violation of these Restrictions shall be grounds for the Grantee or the EPA to obtain injunctive relief and to file such other causes of action as allowed by law.

* * * * *

EXHIBIT G

DOP SOUTH TRACT SITE RESTRICTIONS

Except as necessary or appropriate to implement, oversee, operate, maintain and monitor the remedial activities, which include but are not limited to inspecting, testing, surveying, monitoring, and treating hazardous substances on, over, under, and across the surface of the DOP Site or the Brio Superfund Site, the DOP South Tract shall not be used for any of the following activities or purposes:

a. animal grazing;

b. animal husbandry;

c. hay or crop production and harvesting::

d. any other agricultural activity;

e. any other commercial activity other than an Approved Limited Use;

f. installation and operation of any groundwater wells other than monitoring or recovery wells required in connection with remediation or environmental monitoring activities;

g. installation and operation of disposal wells;

h. any human habitation or residence, either temporary or permanent;

i. recreational, hunting, fishing, hiking, exercising, and athletic activities;

j. drilling, mining, seismic exploration, surface construction with the intent to drill or mine,

k. or any other similar surface or subsurface activity;

l. blasting or any other use of explosives; or

m. any casual pursuit of activity;

and the DOP South Tract shall only be used for such uses and activities as may be required or permitted pursuant to an order issued by the EPA.

* * * * *

APPENDIX G

SITE GEOLOGY

DIXIE OILPROCESSORS REFINERY SUPERFUND SITE
GEOLOGY

The Dixie Oil Processors (DOP) Site is located within the Pleistocene Deltaic Plain of the Brazos River, known as the Alameda Delta. The Site is underlain with Pleistocene and Pliocene deposits to a depth of approximately 2400.0 feet as shown on Figure 1. The aquifers used to supply water for domestic, industrial and agricultural purposes are the Lower Chicot and Evangeline, which are confined aquifers isolated from surface recharge. The groundwater flow in the Lower Chicot and the Evangeline is to the southeast.

The Friendswood Oil Field borders the Site and is an extensively explored oil and gas field. The Oligocene Age Formation of the Texas Gulf Coast Region is the oil producing zone with wells from 4000 to 7000 feet deep.

The site-specific geology that was under investigation during the Remedial Investigation/Feasibility Study (RI/FS) was the Beaumont Formation as shown in Figure 2, The results from the Feasibility Study and Summary Report are given in the following paragraphs.

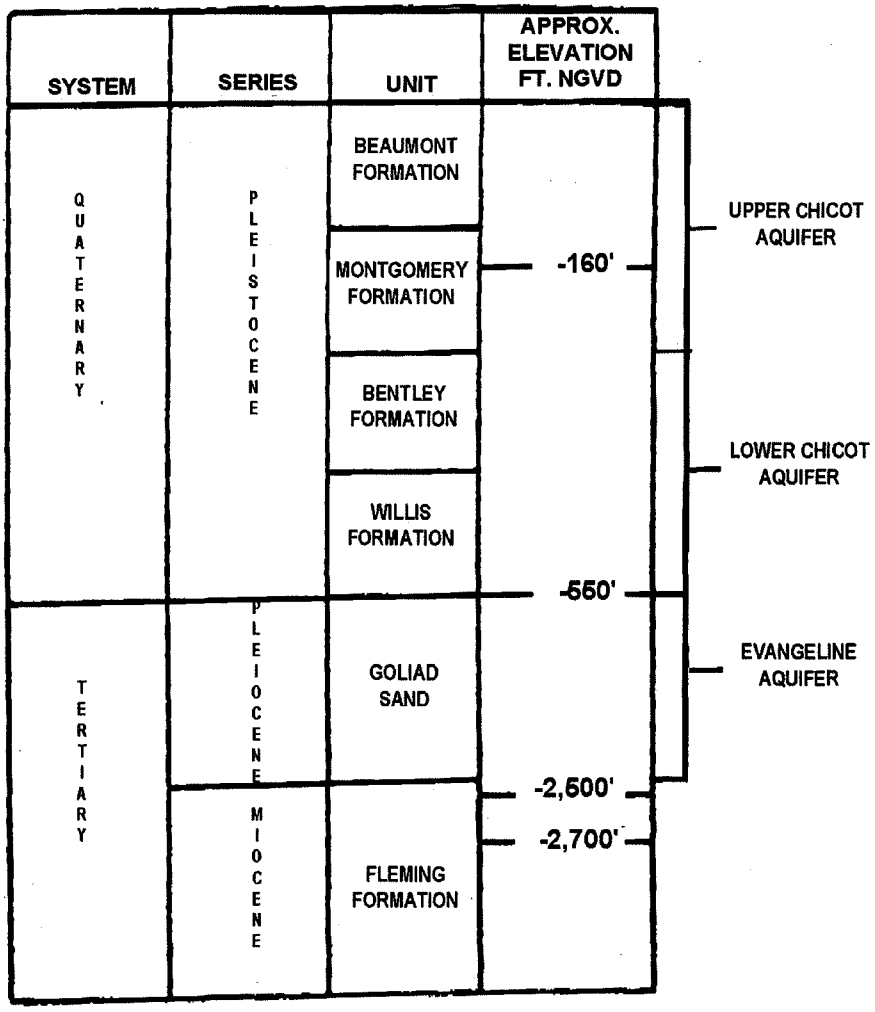
The Beaumont Formation is separated into five major units (Figure 2). The Upper Clay Unit is composed of clay and silty clay. The unit is continuous across the Site and ranges in depth from 14 to 32 feet. The Numerous Sand Channels Zone (NSCZ) is the next unit and is comprised of interbedded sands, sandy silts, silty sands, clayey silts and silty clays. The thickness of the NSCZ varies across the Site from less than 10 feet to over 20 feet. The NSCZ is the upper water bearing unit with well yields less than 10 gpm. The Middle Clay Unit is next and is composed of silty clay/clayey silt. The thickness ranges from 8 to 20 feet. The Middle Clay separates the NSCZ from the lower aquifer and forms a confining layer over the lower unit. The Fifty-Foot Sand Zone (FFSZ) is the fourth unit and occurs between 52 and 62 feet below ground surface. The thickness varies from 35 to 45 feet. The FFSZ has a reasonably high well yield. The fifth and last unit is the Lower Clay unit, a silty clay approximately 100 to 120 feet thick. The unit extends to at least 200 feet below ground surface.

A salt dome fault is located in the western part of the DOP Site. According to Dr. Carl Norman of the University of Houston, the ground movement north of the fault has been downward in relation to the ground south of the fault. The fault could cause a slight reduction in lateral groundwater flow for various units across the fault. At this time, there is no evidence to support a vertical hydraulic connection between the units along the fault.

The NSCZ and the FFSZ are the two water bearing units investigated at the DOP Site. The NSCZ potentiometric surface indicates that the groundwater flow is towards Mud Gully and will either run parallel to the gully or discharge into the gully. The groundwater flow volumes range from 6.6 to 102.0 gallons per year per square root of cross-sectional area. The velocity of the groundwater ranged from 2.9 to 68.0 feet per year.

The potentiometric surface of the FFSZ showed a hydraulic gradient of 0.0001 in the south-southeast direction. Flow would be towards the Gulf Coast Lateral groundwater flow volumes range from 1.2 to 12.0 gallons per year per sq. ft. of cross sectional area. Groundwater in the FFSZ flows in an eastwardly direction at rates on the order of 10 to 50 ft. per year.

The Middle Clay Unit has an upward hydraulic gradient thereby minimizing the potential for groundwater movement between the NSCZ and the FFSZ over most of the Site.



NOTES:

1. Drawing not to scale.
2. Modified from Gabrysch, 1980
3. NGVD refers to National Geodetic Vertical Datum

Information obtained from the IT Corporation Summary Report

DOP SITE		
Generalized Stratigraphic Column		
	DATE 2-18-88	FIGURE 1

Lithostratigraphic Units			Site Lithologic Units	Site Hydrologic Units
Beaumont Formation	UPPER	Eunice Member	Upper Clay Unit	Semi-Confining Layer
			Numerous Sand Channels Zone (NSCZ)	Upper Water-Bearing Zone
	LOWER	Oberlin Member	Middle Clay Unit	Aquitard
			Fifty Foot Sand Zone	Lower Water-Bearing Zone
Lissie Formation			Lower Clay Unit	Aquitard

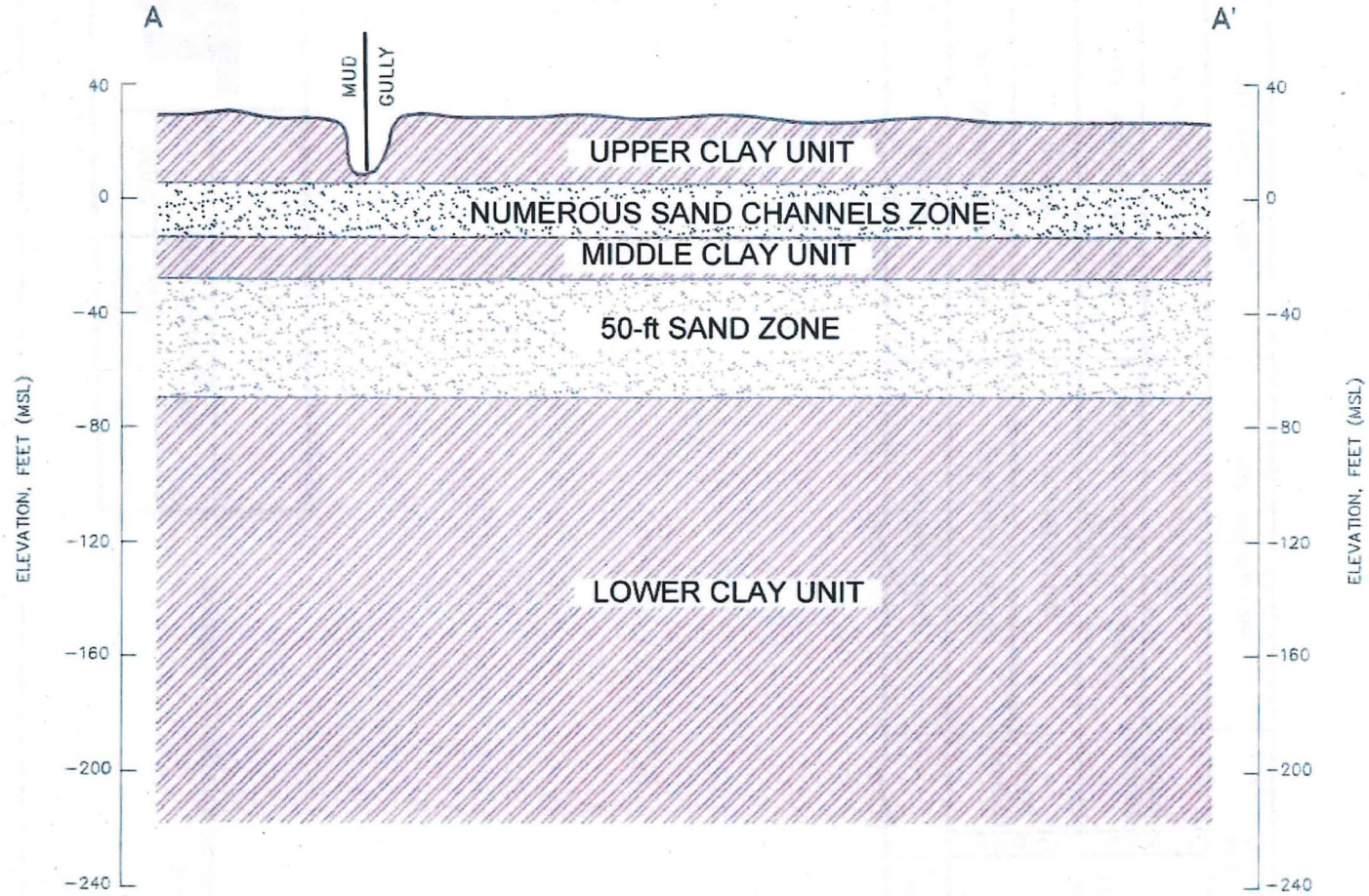
Information obtained from the IT Corporation Summary Report

DOP SITE

Site Lithologic Units

	DATE	FIGURE
	2-18-88	2

FIGURE 3
GEOLOGIC CROSS-SECTION



DOP SITE

HOUSTON, TEXAS

SCALE:	MADE BY: SJ	DATE: 7/7/93	FILE NO.
NOTED	CHECKED BY:	DATE:	92T317C

GENERALIZED GEOLOGIC CROSS-SECTION A-A'

Location: HOUSTON, TX. CAD 2, File name: C:\DWG\92T317C\92T31794.DWG Last edited: 08/18/93 @ 15:58

APPENDIX H

CHRONOLOGY OF SITE EVENTS

Chronology of Site Events

Event	Date
Copper recovery and hydrocarbon washing activities conducted at the Site	1969-1986
Remedial Investigation/Feasibility Study (RI/FS) complete	1/1988
Record of Decision Signed	3/31/1988
Final Listing on EPA National Priorities List	10/1989
Unilateral Administrative Order	7/10/1991
Start of On-Site Construction	3/25/1992
EPA approval of Remedial Design/Remedial Action Work Plan-Phase I	3/25/1992
EPA approval of Remedial Design/Remedial Action Work Plan-Phase II	8/17/1992
DOPSTF Notification to EPA of Completion of Phase I/II Activities	3/27/1993
Preliminary Closeout Report	6/09/1993
DOP Maintenance, Operations, and Monitoring Plan Submitted to EPA	7/1993
EPA Approved Remedial Action Report	8/6/1993
Final Closeout Report	1/18/1996
DOP Maintenance, Operations, and Monitoring Plan Rev. 1 Submitted to EPA	1/1997
First Five-Year Review	9/24/1998
DOP Maintenance, Operations, and Monitoring Plan Rev. 2 Submitted to EPA	1/1999
Second Five-Year Review	9/04/2003
Institutional Control Plan Finalized	2/2/2006
DOP Maintenance, Operations, and Monitoring Plan Rev. 3 Submitted to EPA	5/2006
Deletion from National Priorities List	8/21/2006
Third Five-Year Review Report	9/9/2008
Third Five-Year Review Report	9/2013