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MEMORANDUM

To:	Gary Miller and Anne Foster U.S. Environmental Protection Agency	**Date:**	May 26, 2016
From:	John Laplante, John Verduin, Wendell Mears, and David Keith, Anchor QEA, LLC	**Project:**	150557-01.01
Cc:	Phil Slowiak, IP David Moreira, MIMC		
Re:	Post-TCRA Quarterly Inspection Report – April 2016		

Introduction

This document reports the results of the April 2016 inspections of the armored cap cover, fencing, and signage installed for the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (TCRA Site).

Background

The TCRA was implemented by International Paper Company (IP) and McGinnes Industrial Maintenance Corporation (MIMC) under an Administrative Settlement Agreement and Order on Consent (AOC) with the U.S. Environmental Protection Agency (USEPA) – Docket No. 06-12-10, effective May 17, 2010. A full description of the TCRA implementation is provided in the associated project documentation:

- Removal Action Work Plan (RAWP; Anchor QEA 2010, 2011)
- Revised Draft Final Removal Action Completion Report[1] (RACR; Anchor QEA 2012)

[1] David Keith, Respondents' Project Coordinator, received a RACR (in the form issued by USEPA) from Valmichael Leos via email on August 15, 2012; however, the appendices to the RACR including the OMM Plan, were not provided to Dr. Keith as part of the document. The OMM Plan had been previously approved by USEPA (in an email from Mr. Leos dated January 18, 2012) and is assumed to remain unchanged. Respondents reserve all rights related to the changes made by USEPA to the Revised Draft Final RACR, submitted by Respondents to USEPA on March 9, 2012.

The inspection summarized in this report was conducted in accordance with the Operations, Monitoring, and Maintenance (OMM) Plan (Appendix N of the RACR – Anchor QEA 2012)[2]. The OMM Plan specifies the timing, pertinent items, tolerances, and procedures for inspection, maintenance, and repair of the armored cap, fencing, and signage installed for the TCRA Site (Figure 1). Respondents' Project Coordinator received an email dated February 16, 2016, from Gary Miller of USEPA directing Respondents to increase the frequency of cap inspections to quarterly until further notice. The April 2016 inspection was the first quarterly inspection conducted following receipt of the February 16, 2016 email.

Visual Inspection

The initial visual inspection took place on April 11, 2016, and included evaluation of the TCRA elements referenced below:

- Inspection of the security fence and signage surrounding the TCRA Site.
- Inspection of the armored cap that was visible above the water line of the San Jacinto River.
- Visual confirmation that waste materials are not actively eroded into the San Jacinto River.

Photographs of conditions observed during the initial and subsequent visual inspections are provided in Appendix A (Figures A-1 to A-7). A summary of each facet of the visual inspection is provided in the following sections.

Armored Cap

Photographs of the armored cap from the inspection event are provided in Appendix A (see Photographs 2 through 9). The majority of the Eastern Cell armored cap was underwater at the time of the inspection on April 11, 2016. All of the visible portions of the armored cap were observed to be intact, and no movement of cap materials was observed at any location.

[2] The OMM Plan was attached to the Draft Final RACR, submitted to USEPA on November 22, 2011, and authorization to implement the OMM Plan was contained in an email from USEPA dated January 18, 2012. The OMM Plan was also attached as an appendix to the Revised Draft Final RACR submitted to USEPA on March 9, 2012.

Subsequent visual inspections occurred on April 19 through April 25, 2016, and May 4, 2016 USEPA was present during the May 4, 2016 visual inspection. These inspections took place during and following the heavy rain and flooding in the area and are discussed below.

Perimeter Fencing

The perimeter fencing (Figure 2) on the west and east banks of the San Jacinto River was visually inspected for breaches or other signs of damage on April 11, 2016. A breach roughly 3 feet by 1.5 feet in size was discovered in the fencing on the west bank on the south side of I-10. National Fence replaced the damaged portion of the fence panel on April 14, 2016. Photographs 13 and 14 in Appendix A show the damaged and repaired fence. No other breaches or other signs of fence damage were observed during the inspection of the perimeter fencing on either the east bank or on the west bank north of I-10. For examples, see Photographs 10 through 12, 16, and 17 in Appendix A.

The portion of the fence installed along the south boundary of the San Jacinto River Fleet (SJRF) property is not included in the fencing inspection, as the SJRF property is currently occupied by an active facility that conducts daily security checks, as required by the U.S. Coast Guard and Transportation Security Administration, for an active maritime fleeting area.

Signage

"Danger" and "No Trespassing" signs are posted at regular intervals on the perimeter fencing surrounding the TCRA Site. For examples, see Photographs 10 and 11 in Appendix A. These signs were observed to be in place during the April 11, 2016 inspection.

A total of 15 signs were installed at the TCRA Site around the perimeter of the land portion of the TCRA Site; the signs are mounted on steel posts and set in concrete pads. For examples, see Photographs 5 and 7 in Appendix A. These signs are intended to face the San Jacinto River to deter water-based entry to the TCRA Site. A few of these signs had rotated out of proper alignment due to the wind, and the affected signs were re-aligned to the intended viewing perspective.

Three USEPA Public Notice signs are present around the TCRA Site located: 1) near the gate entry point for the perimeter fence north of I-10; 2) near a gate entry point south of I-10; and

3) at the end of the TxDOT right-of-way north of I-10 near the San Jacinto River. For examples, see Photographs 1 and 12 in Appendix A. These three signs were observed to be in place and undamaged.

Signage on all locked gates reminds entrants to "daisy chain" the locks properly prior to leaving the TCRA Site, as seen in Photograph 2. These signs were observed to be in place and undamaged.

Table 1 summarizes the condition of the TCRA Site signage described in this section.

Table 1

TCRA Perimeter Fencing and Sign Inspection Punch List

Task	Status	
	Completed	Date
Perimeter Fence Visually inspect the perimeter fencing on the east and west sides of the San Jacinto River.	Yes	4/11/2016
"Danger" and "No Trespassing" Signs Visually inspect the 15 signs to verify that they remain in place.	Yes	4/11/2016
USEPA Public Notice Signs Visually inspect the 3 signs to verify that they remain in place.	Yes	4/11/2016
Daisy Chain Signs Visually inspect the 2 signs to verify that they remain in place.	Yes	4/11/2016

Perimeter Buoys

As part of the TCRA Site activities related to the quarterly inspection, additional permanent warning buoys were installed around the perimeter of the armored cap. The buoys were installed as outlined in the letter from Respondents' Project Coordinator dated February 16, 2016 (Anchor QEA 2016a). Mobilization began on April 27, 2016, and installation was completed on April 31, 2016. The installation was scheduled for the week of April 18, 2016, but was delayed due to the heavy rain fall that week. Photographs 25 through 28 in Appendix A show the installed permanent buoy system.

Security Cameras

Security cameras, installed as outlined in Addendum 2, to the OMM Plan (Anchor QEA, 2016b), were also inspected. The security camera system was located and operating normally during the inspection.

Surveys

Portions of the armored cap above the water surface or at a water depth too shallow to access by boat were surveyed using land-based topographic survey techniques. A bathymetric survey was performed for the portions of the armored cap below the water surface and accessible by boat. The surveyor followed the track line spacing, measurement intervals, and accuracy requirements detailed in the OMM Plan.

Survey Tolerance Requirements

The OMM Plan requires that each survey be compared with the prior completed survey using the following criteria:

1. Areas with elevations that are within 6 inches of the previous survey require no action.
2. Contiguous areas with elevation changes exceeding plus or minus 6 inches triggers a review of the survey benchmarks for accuracy or movement.
3. Areas where surveyed elevations are 6 inches higher or lower than the prior survey for a contiguous area larger than 30 feet by 30 feet will require probing to measure the cap thickness.

Survey Results

The survey data from the April 2016 survey and the October 2015 survey were compared to evaluate the differences in the top of the armored cap elevation. These differences are shaded and shown on Figure 3. The survey results indicate continued sedimentation/deposition, some scour of prior alluvial deposition and the presence of maintenance areas at which work was completed in December 2015 and April 2016.

The OMM Plan calls for manual probing of armored cap thickness in areas identified by the topographic or bathymetric surveys as more than 6 inches lower in elevation than during the prior survey over contiguous areas of 30 feet by 30 feet. When the April 2016 and October

2015 surveys were compared, the results indicated that there were 5 areas of interest indicating potential changes of greater than one foot. Respondents elected to probe these areas although they were all smaller than 30 feet by 30 feet. The 5 areas were probed on May 13, 2016, with 1 location (location 5 on Figure 3) being identified as requiring maintenance (Table 2). Location 5 had exposed geotextile and some but not the specified thickness cap material of over an area of approximately 4 foot by 3 foot.

As with location 5, the 4 other small areas identified as increases and decreases in elevation were probed at the centroid and to their extent in all principal directions (north, south, east and west) using a steel rod, steel tube and plastic tube. The probes at these 4 locations indicated that the cap was intact and armor rock was present at the required thickness. These survey differences can be attributed to the horizontal and vertical limitations of the survey, shifts in track line location from the baseline survey that were taken in a higher than normal flow event, shifts in alluvial deposits since construction and elevation data recorded in the crevices between rock surfaces, atop shellfish growth or on the surface of the maintenance areas completed in March and April 2016. The potential for these types of variations between the two datasets to exist was confirmed by the surveyor after reviewing the data collected during this inspection.

Maintenance of TCRA Armored Cap

As noted above, one area of the TCRA armored cap that required maintenance was identified through probing conducted on May 13, 2016 (i.e., location 5 on Figure 3). The USEPA was notified of the TCRA armored cap issue and a maintenance event was planned. USEPA provided approval to perform the maintenance activity by email on May 17, 2016. The maintenance activity consisted of installing the prescribed "D" rock to a thickness of 1.5 feet in that area, and that took place on May 20, 2016.

On May 18, 2016, in the course of the USEPA Dive Team's installation of porewater monitors, a second location that required maintenance was identified. Maintenance was performed in this area on May 20, 2016, and is shown on Figure 3 and identified as area of interest 6. The area was delineated as an area of 2 foot by 3 foot in which there was exposed geotextile and some but not the specified thickness of cap material.

Post-Rain Visual Inspections

Heavy rainfall and flooding occurred in the area of the TCRA Site during the week of April 18, 2016. Three inches of rain fell between April 18 and April 22, 2016. The stage heights at Lake Houston and the U.S. 90 gauge peaked at or above the 10-year flood level. At the request of USEPA, daily visual inspections were performed April 19 through April 22, 2016. On these dates, the TCRA Site was not accessible due to flooding on the access roads, so conditions were observed from the I-10 Bridge and from the east bank. The majority of the armored cap was under water during this time. Additional visual inspections were performed on April 25, 2016, and again, after the water subsided, on May 4, 2016. The USEPA was present at the May 4, 2016 inspection when the water receded and the TCRA Site was accessible by automobile and on foot. No movement of cap material was observed in connection with these inspections. See Photographs 18 through 24 for Site conditions after the flooding.

Inspection Summary

The Post-TCRA inspections during April 2016 and extending into early May 2016 identified two areas of the armored cap that required maintenance. Other than maintenance as to these two areas, the armored cap was observed to be intact and performing as expected. During the inspections, no deficiencies were noted in the signage. The inspection also identified a breach in the perimeter fence on the west bank on the south side of I-10 that was repaired on April 14, 2016. The perimeter buoys and security cameras were in place and functioning normally.

List of Appendices

Appendix A – Inspection Photographic Log

References

Anchor QEA, LLC (Anchor QEA), 2010. *Removal Action Work Plan, San Jacinto River Waste Pits Superfund Site.* Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on behalf of McGinnes Industrial Maintenance Corporation and International Paper Company. November 2010.

Anchor QEA, 2011. *Removal Action Work Plan, San Jacinto River Waste Pits Superfund Site*. Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on

behalf of McGinnes Industrial Maintenance Corporation and International Paper Company. Revised February 2011.

Anchor QEA, 2012. *Revised Draft Final Removal Action Completion Report, San Jacinto River Waste Pits Superfund Site.* Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency (USEPA) Region 6. Revised March 2012.

Anchor QEA, 2016a. Letter from D. Keith to G. Miller describing proposed site buoy enhancements. February 16, 2016.

Anchor QEA, 2016b. *Addendum 2, Operations, Monitoring, and Maintenance Plan*. February 29, 2016.

USEPA, 2010. *Administrative Settlement Agreement and Order on Consent for Removal Action.* U.S. Environmental Protection Agency Region 6 CERCLA Docket No. 06-03-10. In the matter of: San Jacinto River Waste Pits Superfund Site Pasadena, Harris County, Texas. International Paper Company & McGinnes Industrial Management Corporation, Respondents.

TABLES

Table 2
San Jacinto Probing Log May 13, 2016

Location	1/2 Edge Distance From Center (feet)	Easting*	Northing*	Rock Refusal?	Depth of Refusal (feet)	Aggregate Type	Notes	Additional Notes
1 Center†	--	3216850.34	13857820.11	Y	0.5	Small rock/shell	Refusal into rock/shell after 6" - shell hash encountered	
1 N	6.5	--	--	Y	1	Small rock/shell	Refusal into rock aggregate after 1'	
1 E	3.5	--	--	Y	2.5	Gravel/sediment	Refusal into gravel/sediment after 2.5'	
1 S	5	--	--	Y	0.67	Small rock/shell	Refusal into rock/shell after 8" - cementitious-like	
1 W	2.5	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6" - cementitious-like	
2 Center†	--	3216926.55	13857813.96	Y	0.67	Small rock/shell	Refusal into rock/shell after 8" - cementitious-like	Definite depression in the area noticable. Rock cap present in all areas.
2 N	6.5	--	--	Y	0.67	Small rock/shell	Refusal into rock/shell after 8" - cementitious-like	
2 E	2	--	--	Y	1	Small rock/shell	Refusal into rock/shell after 1' - cementitious-like	
2 S	4	--	--	N	N/A	Gravel/sediment	1.5' of rock/sediment encountered	
2 W	2	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6" - cementitious-like	
3 Center†	--	3217078.74	13857986.52	Y	0.5	Small rock/shell	Refusal into rock/shell after 6"- cementitious-like	Definite depression in the area noticable. Rock cap present in all areas.
3 N	4	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6"- cementitious-like	
3 E	3.5	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6"- cementitious-like	
3 S	3.5	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6"- cementitious-like	
3 W	5	--	--	Y	0.5	Small rock/shell	Refusal into rock/shell after 6"- cementitious-like	
4 Center†	--	3217174.07	13857792.92	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
4 N	3.5	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
4 E	3	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
4 S	2.5	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
4 W	3	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
5 Center†	--	3217239.31	13857701.16	N	N/A	Geotextile encountered	Approximate area of 4' North to South by 3' East to West centered on center point of AOI	
5 N	3.5	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
5 E	4	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
5 S	3	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	
5 W	2.5	--	--	Y	0	Large rock/shell	Refusal into large rock/shell hash; no penetration	

Notes:

* Texas State Plane, South Central, NAD83, U.S. Survey Feet

† - Indicates center point of respective area of interest

The centroid of each area of interest identified by the April 2016 survey was probed first, then within each area of interest the probing was offset half the distance to the edge of the area in each cardinal direction. If areas of insufficient thickness were encountered, probing was used to delineate the dimensions of the area of insufficient thickness.

FIGURES

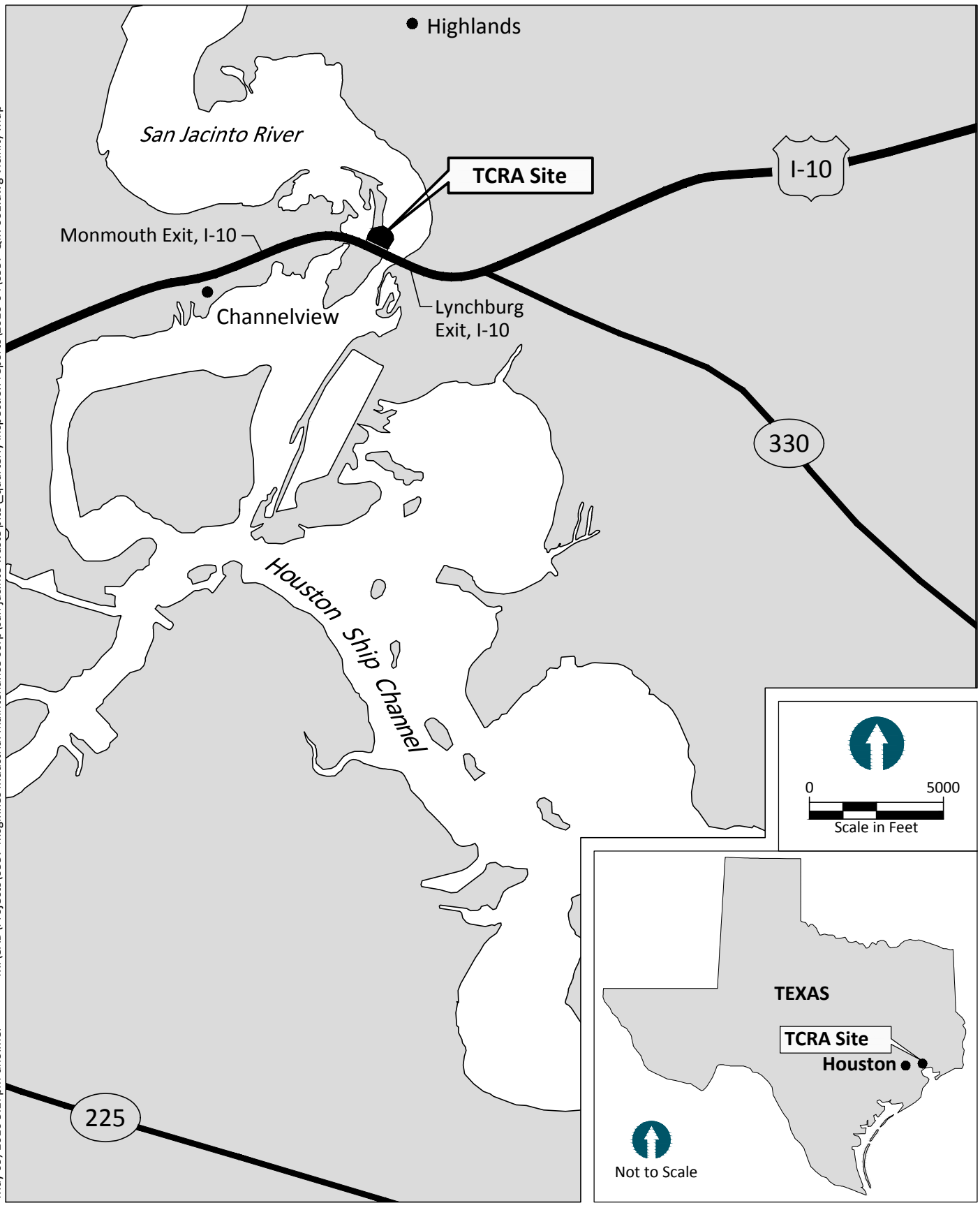

Figure 1
Vicinity Map
Post-TCRA Quarterly Inspection (April 2016)
San Jacinto River Waste Pits Superfund Site

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SOURCE: Martin Survey Associates, Inc. survey dated 2/23/2010 - 3/01/2010.
AERIAL SOURCE: Google Maps imagery.
NOTES:
1. Existing access gates have two 12-foot-wide leafs providing a 24-foot-wide opening.
2. Coordinates are in Texas State Plane, NAD 83 (South Central Zone). Coordinates shown are grid. Multiply by 1.0001007882 to convert to surface coordinates.
3. A guardrail barrier was constructed along the south side of the access road, and conformed to TxDOT Specifications Manual Items 540, 542, and 544.
4. Power line poles providing service to billboards were moved near TxDOT ROW property line.
5. "Danger" and "No Trespassing" signs have been installed on TCRA fencing.

Access Gate (See Note 1)

South Right-Of-Way (Approximate)

Access Gate (See Note 1)

Existing Fence Terminates in Water

℄ Westbound Lane I-10 to Houston

℄ Eastbound Lane I-10 to Baytown

I-10

SAN JACINTO RIVER

Fence Terminates at Concrete of I-10 Bridge

Fence Terminates at Shoreline

SAN JACINTO RIVER

Fence Line Follows Southern Limits of the TxDot Right-Of-Way

Crosby-Lynchburg Road

Access Gates

S01 S02 S03 S04 S05 S06 S07 S08 S09 S10 S11 S12 S13 S14 S15

A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16

LEGEND:

- Texas Department of Transportation (TxDOT) Right-Of-Way (ROW) (Approximate)
- Existing Fence
- S01 — Approximate Location of "Danger" and "No Trespassing" Signs along the Western Cell Perimeter.
- A1 — Buoy Location and Designation

0 300
Scale in Feet

M:\CAD\Projects\0557-mcginnes industrial maintenance corp\san jacinto waste pits_quarterly inspection reports\2016-04\0557-QIR-002.dwg Fence and Warning Sign Layout
May 09, 2016 5:18pm dholmer

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Figure 2
Fence and Warning Sign Layout
Post-TCRA Quarterly Inspection (April 2016)
San Jacinto River Waste Pits Superfund Site

LEGEND:

- April 2016 Bathymetric and Topographic Contours (1 Foot Interval)
- B/C — Armored Cap Type and Boundary
- Historic Impoundment Limits
- 1 — Area of Interest
- Probe Location (May 2016)
- > 1.0 Foot Increase
- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- 30' x 30' — Example 30'x30' Area

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated October 2015 and April 2016.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 120
Scale in Feet

M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Quarterly Inspection Reports\2016-04\PROBE 0557-QIR-003.dwg Current Probes
May 24, 2016 2:51pm dholmer

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Figure 3
April 2016 Quarterly Inspection
Post-TCRA Quarterly Inspection (April 2016)
San Jacinto River Waste Pits Superfund Site

APPENDIX A
INSPECTION PHOTOGRAPHIC LOG

Photograph 01: USEPA Public Notice Sign located outside access gate north of I-10 (view east)

Photograph 02: Access gate north of I-10 (view east)

Photograph 03: Temporary buoys marking perimeter of Eastern Cell (view northeast)

Photograph 04: Eastern Cell from east end of southern berm (view northwest)

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Figure A-1
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 05: Warning sign along southern berm (view south)

Photograph 06: Intertidal area of Eastern Cell and central berm (view north)

Photograph 07: Warning signs and security camera system along central berm (view northwest)

Photograph 08: Interior of Western Cell (view southwest)

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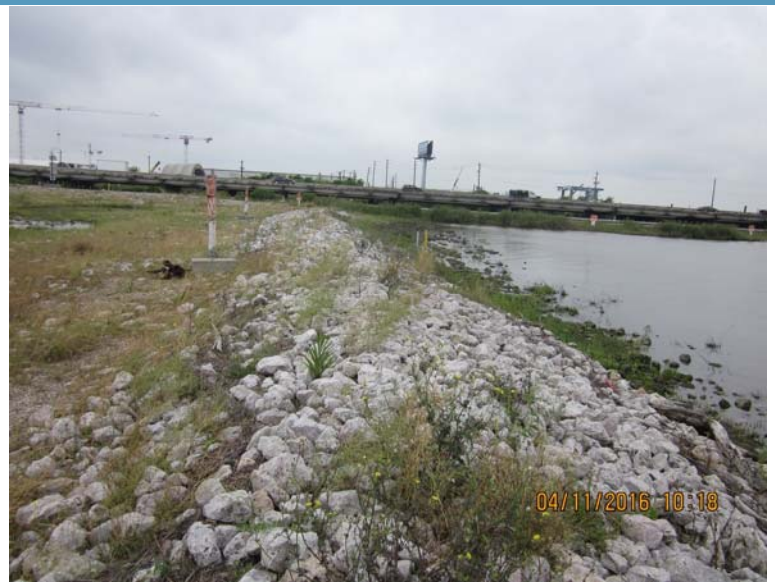
Figure A-2
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site



Photograph 09: Western berm (view south)

Photograph 10: Signage and perimeter fencing on west bank south of I-10 (view northeast)

Photograph 11: Signage and perimeter fencing on west bank south of I-10 (view north)

Photograph 12: USEPA Public Notice Sign on west bank south of I-10 (view north)

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Figure A-3
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 13: Breach in the perimeter fencing on the west bank south of I-10 (view northeast)

Photograph 14: Repaired perimeter fencing on west bank south of I-10 (view north-east)

Photograph 15: Fish consumption advisory signs south of I-10 on west bank (view south)

Photograph 16: Perimeter fencing on east bank south of I-10 (view northwest)

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Figure A-4
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 17: Perimeter fencing on east bank south of I-10 (view northeast)

Photograph 18: Southern berm after heavy rainfall the week of April 18, 2016 (view northeast)

Photograph 19: Central berm after heavy rainfall the week of April 18, 2016 (view north)

Photograph 20: Interior of Western Cell after heavy rainfall the week of April 18, 2016 (view northwest)

Figure A-5
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 21: Central berm after heavy rainfall the week of April 18, 2016 (view north)

Photograph 22: Interior of Western Cell after heavy rainfall the week of April 18, 2016 (view southwest)

Photograph 23: Western berm after heavy rainfall the week of April 18, 2016 (view south)

Photograph 24: Interior of Western Cell after heavy rainfall the week of April 18, 2016 (view north)

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Figure A-6
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 25: Buoy System (view east)

Photograph 26: Buoy System (view north)

Photograph 27: Buoy System (view south and west)

Photograph 28: Buoy System (view south southwest and left of Photograph 27)

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Figure A-7
Site Photographs
Post-TCRA Inspection Report (April 2016)
San Jacinto River Waste Pits Superfund Site