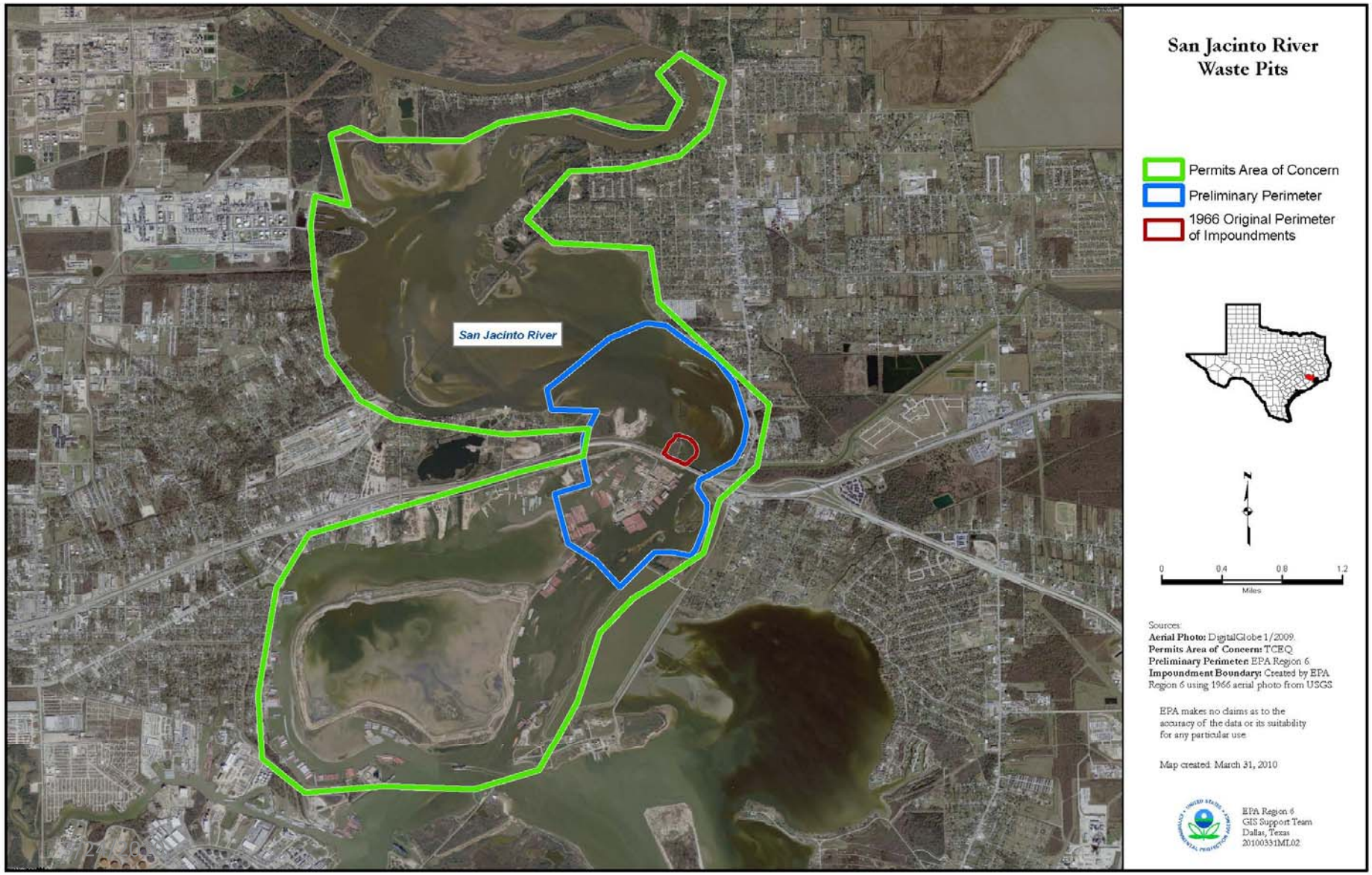
SAN JACINTO RIVER WASTE PITS SUPERFUND SITE

USEPA, REGION 6

June 2010

SITE MAP


San Jacinto River
San Jacinto River
Waste Pits
Permits Area of Concern
Preliminary Perimeter
1966 Original Perimeter
of Impoundments
0
0.4
0.8
1.2
Miles
Sources:
Aerial Photo: DigitalGlobe 1/2009.
Permits Area of Concern: TCEQ.
Preliminary Perimeter: EPA Region 6.
Impoundment Boundary: Created by EPA
Region 6 using 1966 aerial photo from USGS.
EPA makes no claims as to the
accuracy of the data or its suitability
for any particular use.
Map created: March 31, 2010
EPA Region 6
GIS Support Team
Dallas, Texas
20100331ML02

PARTICIPATING AGENCIES

- Federal and State Natural Resource Trustees
  - NOAA, FWS, TCEQ, TPWD, GLO
- Coordination Partners
  - ATSDR/CDC
  - U.S. Army Corps of Engineers
  - Texas Department of Transportation
  - Houston-Galveston Area Council
  - Harris County
  - Port of Houston Authority

Respondents

- International Paper Company & McGinnes Industrial Maintenance Corporation.
- RI/FS Unilateral Administrative Order: November 20, 2009
- TCRA Administrative Order on Consent: May 11, 2010.

SITE PROGRESS

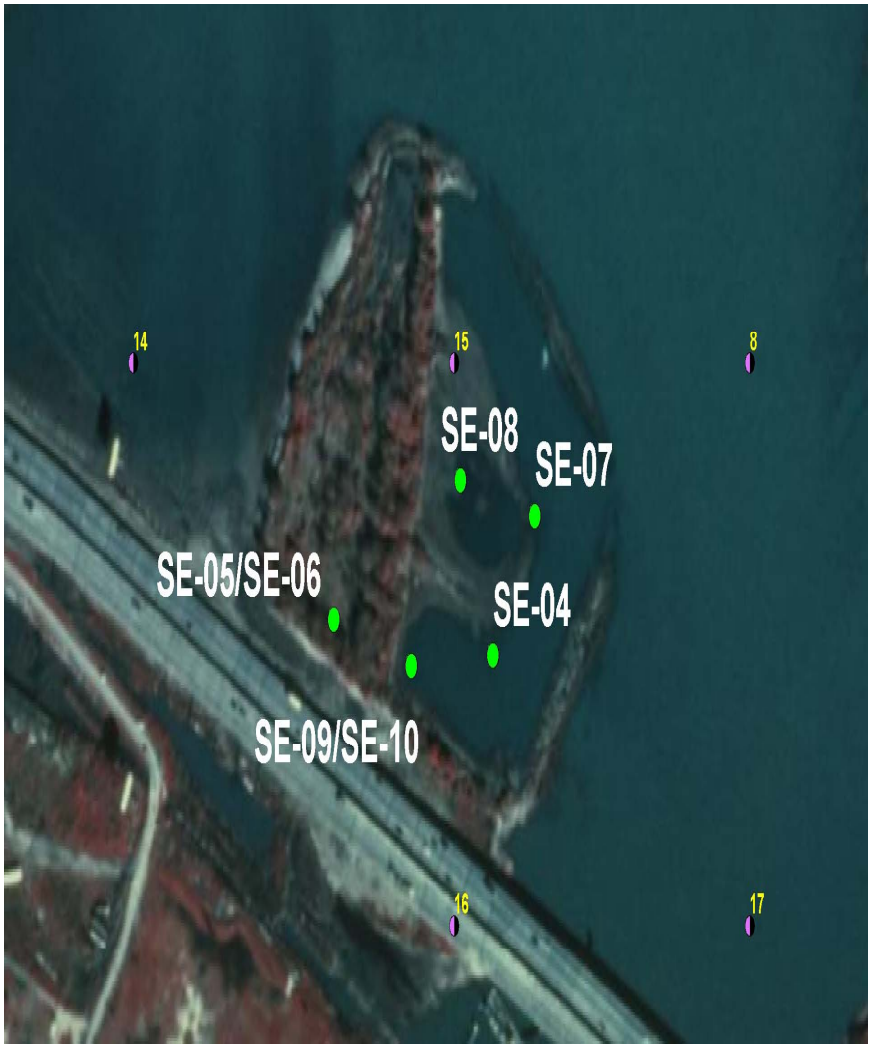
- REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)
- USACE PERMITS ACTIVITY
- WATERSHED MANAGEMENT STRATEGY
- SOURCE STABILIZATION (TCRA)

RI/FS


San Jacinto River
I-10 West
to Houston
I-10 East
to Beaumont
San Jacinto River
Waste Pits
Location Map
Legend
Preliminary Perimeter
McGinnis Parcel
Northern Impoundment
Perimeter
0 0.1 0.2 0.3 0.4
Miles
Sources:
Aerial Photo: Digital Globe, 12/01/2007.
McGinnis Parcel: Harris County
Appraisal District, 2008.
Northern Impoundment: EPA R6 GIS
digitized from Univ. of Houston Power
Point Presentation
EPA makes no claims as to the
accuracy of the data or its suitability
for any particular use.
Map created: July 8, 2009
EPA Region 6
GIS Support Team
Dallas, Texas
20090708JD02
N

RI/FS, cont.

- RI/FS Work Plan:
  - Work plan of all remedial investigation components.
  - Identifies critical path needed to fully evaluate all remedial approaches.



<Discuss Highlight 1-5, Remedial Approaches for Contaminated Sediment>

1.3.1 Remedial Approaches

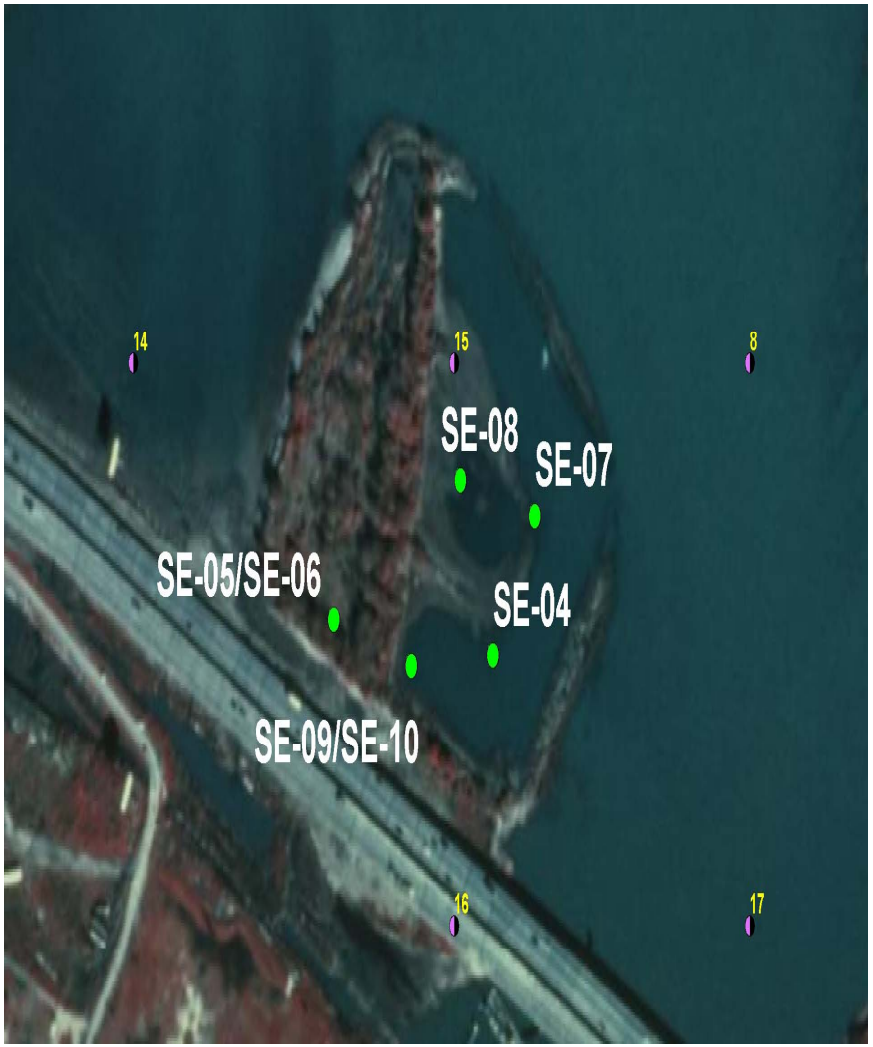
Highlight 1-5 lists the major remedial approaches or alternatives available for managing risks from contaminated sediment. Frequently, a final sediment remedy combines more than one type of approach.

Highlight 1-5: Remedial Approaches for Contaminated Sediment

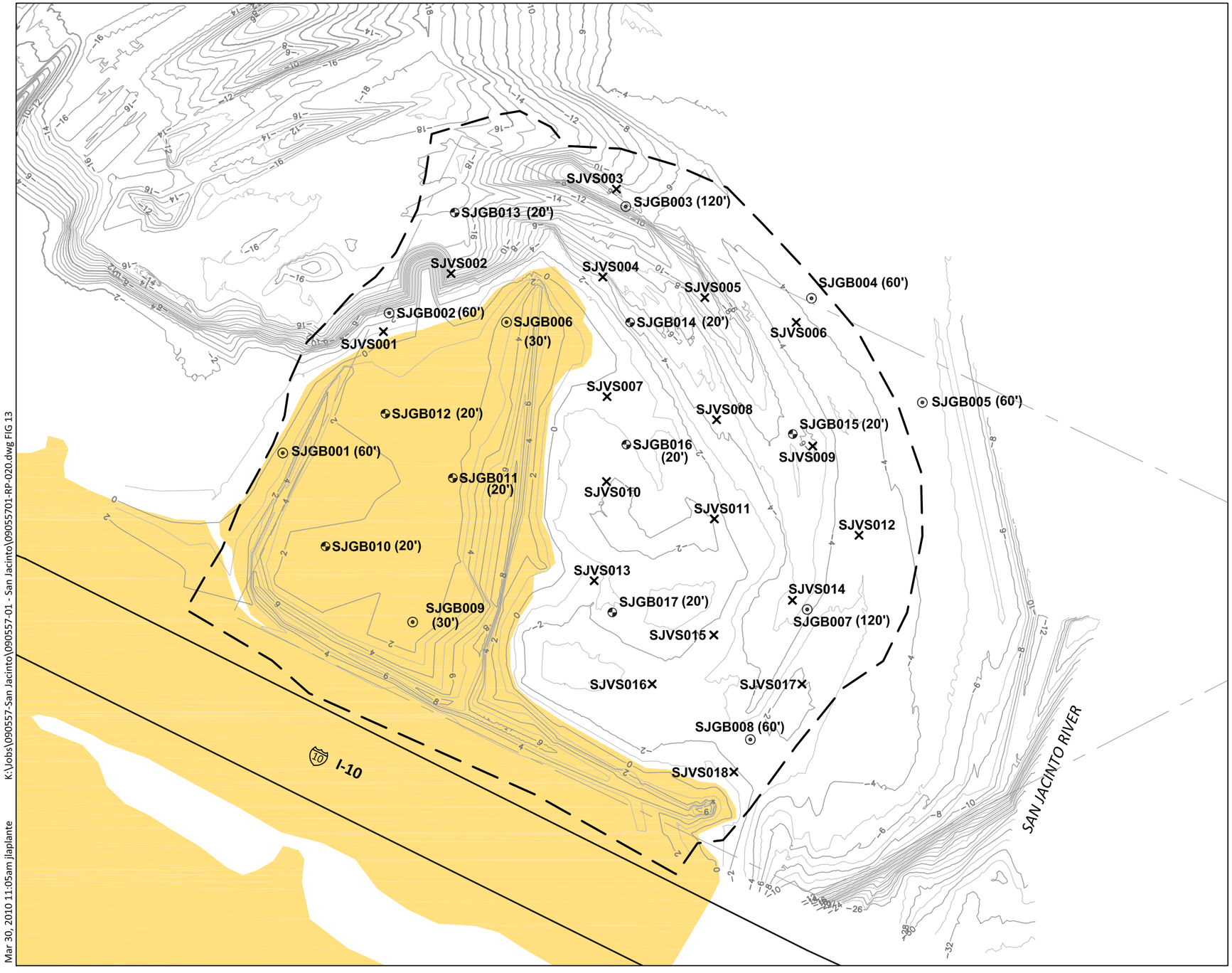
In-situ Approaches	Ex-situ Approaches
In-situ Capping: • Single-layer granular caps • Multi-layer granular caps • Combination granular/geotextile caps Monitored Natural Recovery: • Physical isolation or other processes • Chemical transformation/sequestration • Biological transformation/sequestration Hybrid Approaches: • Thin layer placement of sand or other material to enhance recovery via natural deposition Institutional Controls: • Fish consumption advisories • Commercial fishing bans • Waterway or land use restrictions (e.g., no anchor or no wake zones, limitations on navigational dredging) • Dam or other structure maintenance agreements In-situ Treatment: • Reactive caps • Additives/enhanced biodegradation	Dredging: • Hydraulic, mechanical, or combination/hybrid dredging and transport to shore • Treatment of dredged sediment and/or removed water • Disposal of dredged sediment or treatment residuals in upland landfill, confined disposal facility, or other placement • Backfill of dredged area, as needed or appropriate Excavation: • Water diversion or dewatering • Excavation of sediment and transport to staging or processing • Treatment of excavated sediment • Disposal of excavated sediment or treatment residuals in upland landfill, confined disposal facility, or other placement • Backfill of excavated area, as needed or appropriate

RI/FS, cont.

- Sediment Sampling & Analysis Plan:
  - Sediment media sampling plan.



<Discuss Figures 13-16, Sediment SAP>



K:\Jobs\090557-San Jacinto\090557-01 - San Jacinto\09055701-RP-020.dwg FIG 13

Mar 30, 2010 11:05am jlaplante

LEGEND:

SJGB001 (60') ⊙	Boring location and depth below mudline - geotechnical sampling (Proposed)
SJGB016 (20') ◔	Boring location and depth below mudline - geotechnical and chemistry sampling (Proposed)
SJVS001 ×	Vane shear test (VST) location (Proposed)
	Approximate 1966 alignment of perimeter berms (EPA)
	Property Line
	Approximate limit of vegetated area

NOTES:

1. Boring and VST locations approximate and subject to change in the field depending on access constraints.
2. Final depth of borings within the impoundments shown as (20') deep will be based on actual contact elevation with native soils so that the boring extends into native material at least 5 feet. The 20-foot depth shown on the plan view is for planning purposes only. Actual depth will vary from location to location based on the thickness of the waste deposit.

0 150

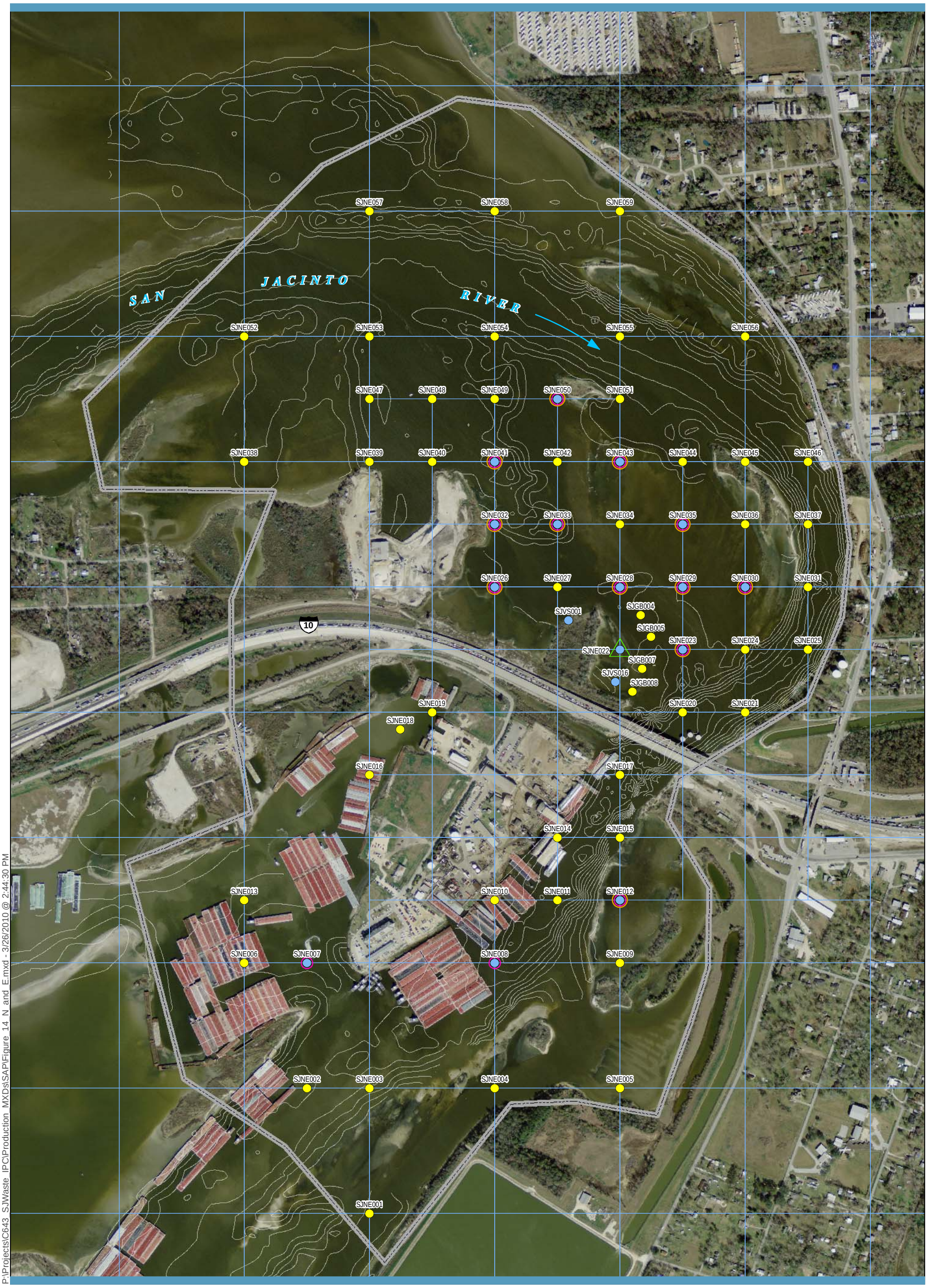
Scale in Feet

SOURCE: Drawing prepared from COE.
HORIZONTAL DATUM: Texas South Central, NAD83. US Survey Feet.
VERTICAL DATUM: NAVD 88.

ANCHOR QEA

integral consulting inc.

Figure 13
Proposed Geotechnical Borings and Vane Shear Test Locations
SJRWP Sediment SAP
SJRWP Superfund/MIMC and IPC



P:\Projects\C643 SJWaste IPC\Production MXDs\SAP\Figure 14 N and E.mxd - 3/26/2010 @ 2:44:30 PM

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0 800

Scale in Feet

Preliminary Site Perimeter

1-Meter 1995 Bathymetric Contour

Field Triplicate

Proposed Locations

Surface Sediment (Primary and Secondary COPCs)

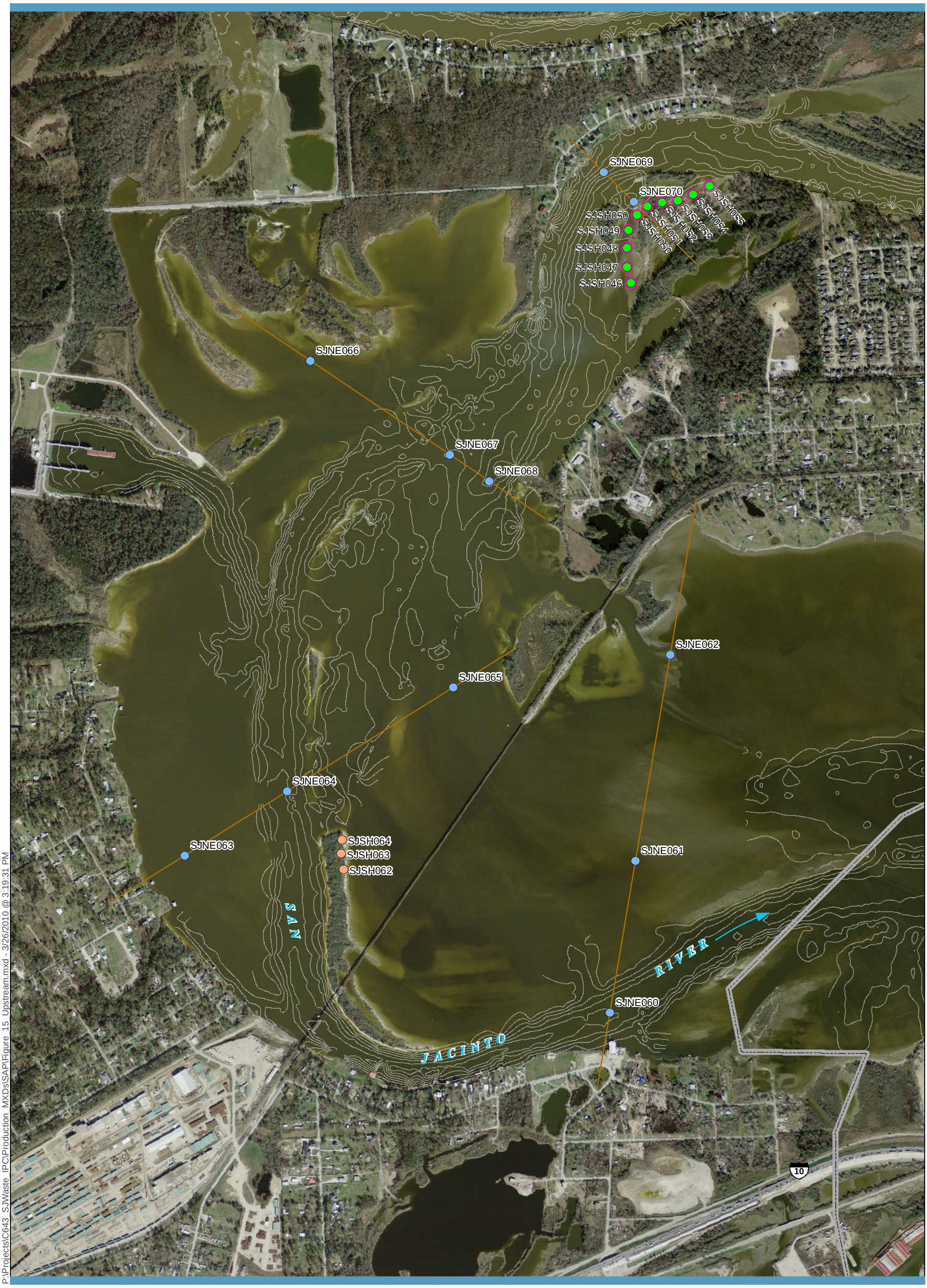
Surface Sediment (Primary COPCs)

Surface Sediment (Primary and Secondary COPCs) and Core (Primary COPCs)

Additional Geotechnical Samples From Core

FEATURE SOURCES:
Aerial Imagery: 0.5-meter 2008/2009 DOQQs - Texas Strategic Mapping Program (StratMap), TNRIS
Contours: NOS Survey H1016 (1995)

Figure 14
Nature and Extent Sediment Sampling Locations Within the Preliminary Site Perimeter
SJRWP Sediment SAP
SJRWP Superfund/MIMC and IPC



P:\Projects\C643 SJWaste IPC\Production MXDs\SAP\Figure 15 Upstream.mxd - 3/26/2010 @ 3:19:31 PM

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integral consulting inc.

0 800

Scale in Feet

Preliminary Site Perimeter

1-Meter 1995 Bathymetric Contour

Sampling Transect

Proposed Locations

Human Health Surface Sediment (Primary COPCs)

Human Health Surface Sediment and Subsurface Sediment (Primary COPCs)

Upstream Background (Primary and Secondary COPCs)

ERA Surface Sediment (Primary COPCs)

FEATURE SOURCES:
Aerial Imagery: 0.5-meter 2008/2009 DOQQs - Texas Strategic Mapping Program (StratMap), TNRIS; Contours: NOS Survey H1016 (1995)

Figure 15
Upstream Sediment Sampling Locations
SJRWP Sediment SAP
SJRWP Superfund/MIMC and IPC

SAN JACINTO RIVER

10

SJSH061
SJSH060
SJSH059
SJSH058
SJSH057
SJSH056
SJSH066
SJSH001

SJSH045 SJSH044 SJSH043 SJSH042 SJSH041 SJSH040 SJSH036 SJSH039 SJSH037 SJSH038
SJSH035 SJSH034 SJSH033 SJSH032 SJSH031 SJSH030 SJSH029 SJSH028 SJSH027 SJSH026
SJSH025 SJSH024 SJSH023 SJSH022 SJSH021 SJSH020 SJSH019 SJSH018 SJSH017 SJSH016
SJSH010 SJSH009 SJSH008 SJSH007 SJSH006
SJSH015 SJSH014 SJSH013 SJSH012 SJSH011 SJSH005
SJSH004 SJSH003 SJSH002

P:\Projects\C643 SJWaste IPC\Production MXDs\SAP\Figure 16 HHERA.mxd - 3/26/2010 @ 3:17:10 PM

ANCHOR QEA

integral consulting inc.

Preliminary Site Perimeter

1-Meter 1995 Bathymetric Contour

Proposed Locations

Human Health Surface Sediment (Primary COPCs)

Human Health Surface Sediment and Subsurface Sediment (Primary COPCs)

ERA Surface Sediment (Primary COPCs)

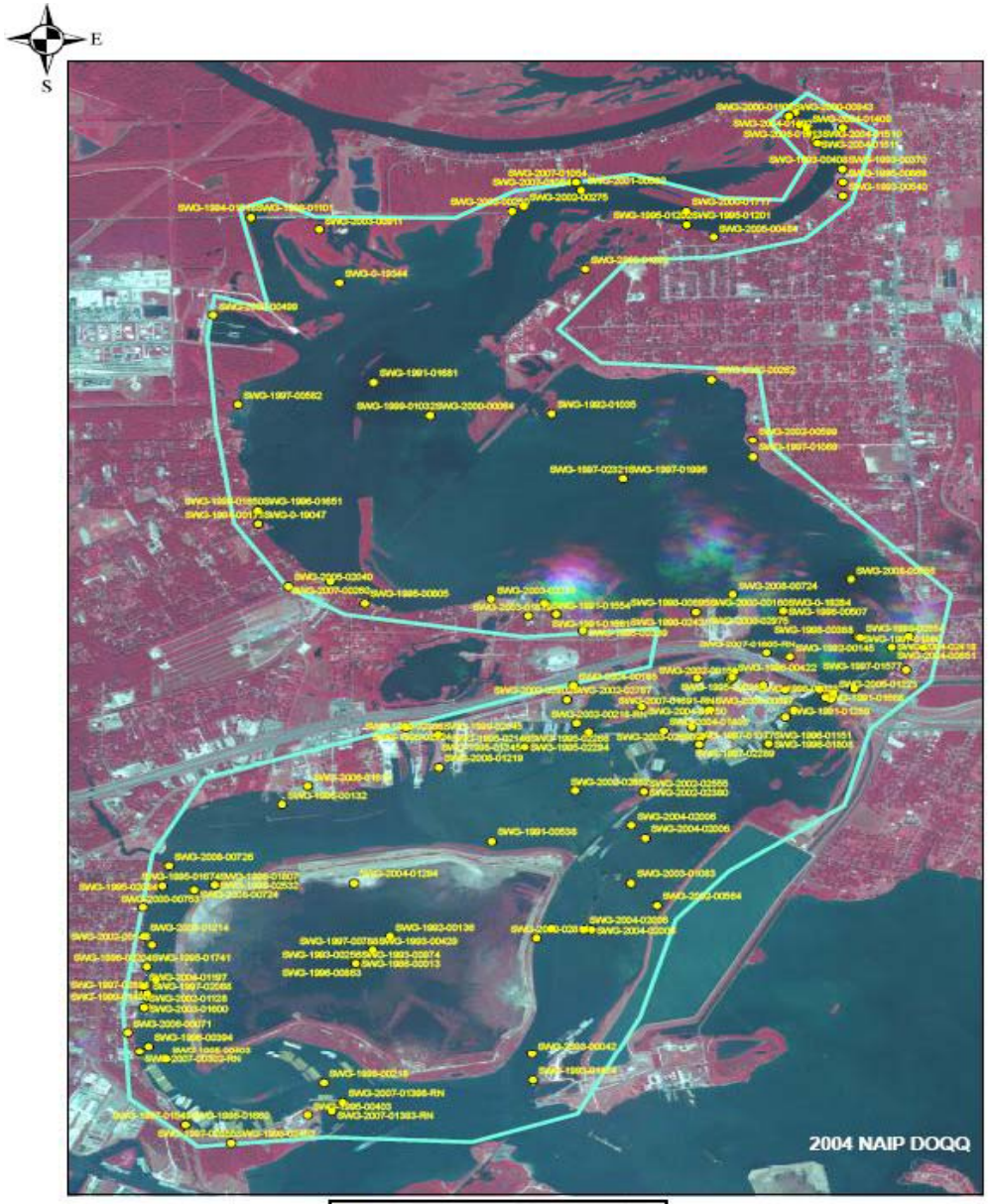
0 800

Scale in Feet

FEATURE SOURCES:
Aerial Imagery: 0.5-meter 2008/2009 DOQQs - Texas Strategic Mapping Program (StratMap), TNRIS; Contours: NOS Survey H1016 (1995)

Figure 16
Human Health and Ecological Exposure Sediment Sampling Locations Within the Preliminary Site Perimeter
SJRWP Sediment SAP
SJRWP Superfund/MIMC and IPC

USACE PERMITS ACTIVITY



USACE PERMITS, cont.

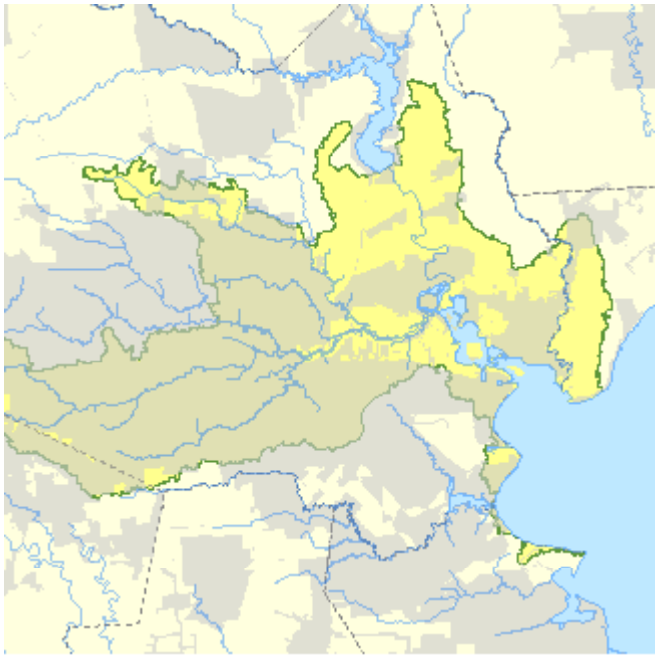
- USACE responsible for issuance of CWA Section 404 and RHA Section 10 permits (dredge and fill), in the Houston Ship Channel.
- Permitted activities may impact RI/FS activities and future cleanup actions.
- Permitted activities that do impact the site may expose permittees to Superfund liability.

USACE PERMITS, cont.

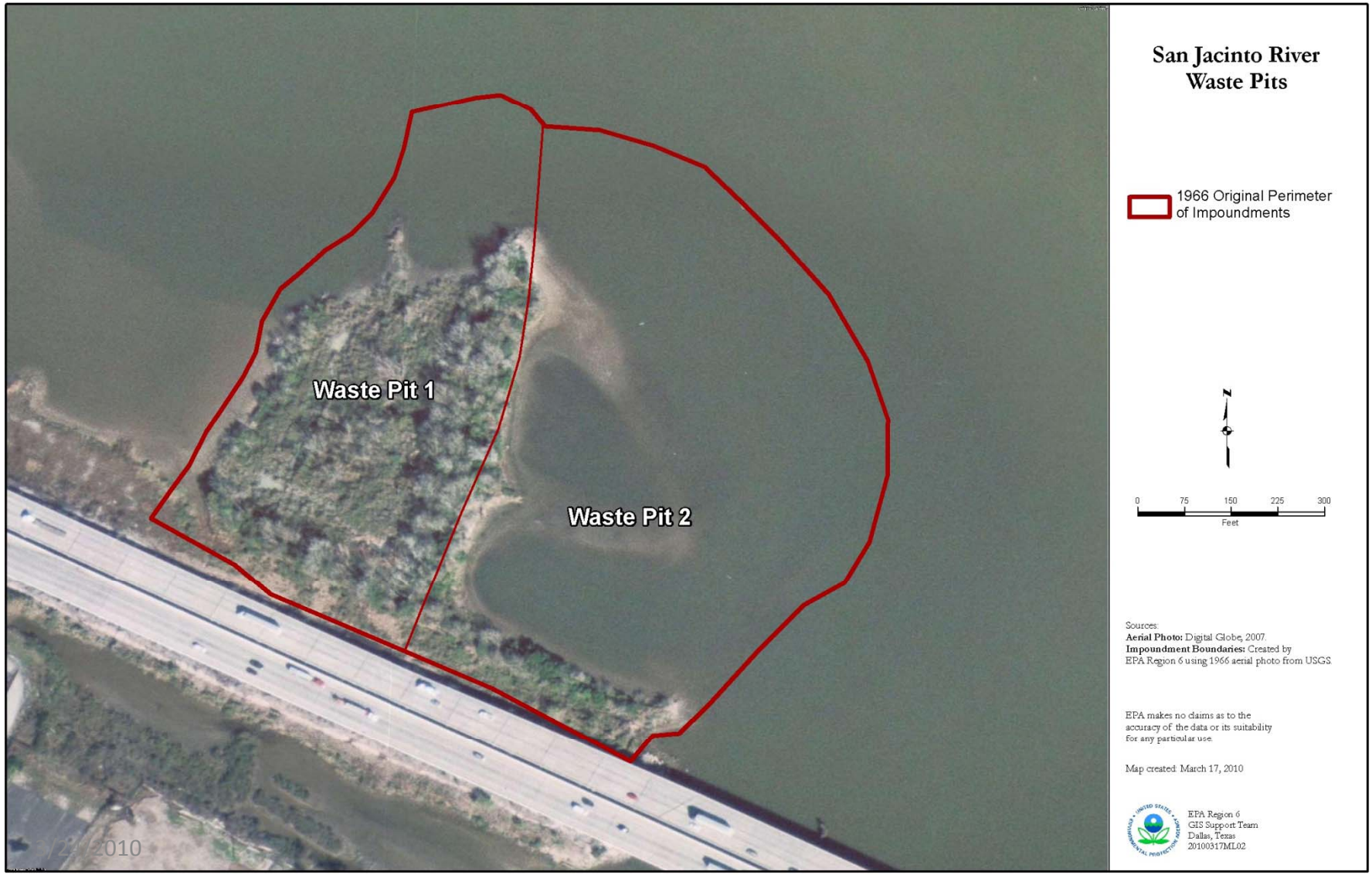
- EPA/USACE/TCEQ coordination efforts:
  - Existing and new permits must adhere to CWA 404 and RHA 10 permitting process within the permits area of concern boundary.
  - In effect since November 1, 2009.

WATERSHED MANAGEMENT STRATEGY

- Dioxin TMDL Study.
- Public notice and TCEQ & EPA approval process anticipated in FY2010-2011.
- Public participation with Houston-Galveston Area Council.



SOURCE STABILIZATION



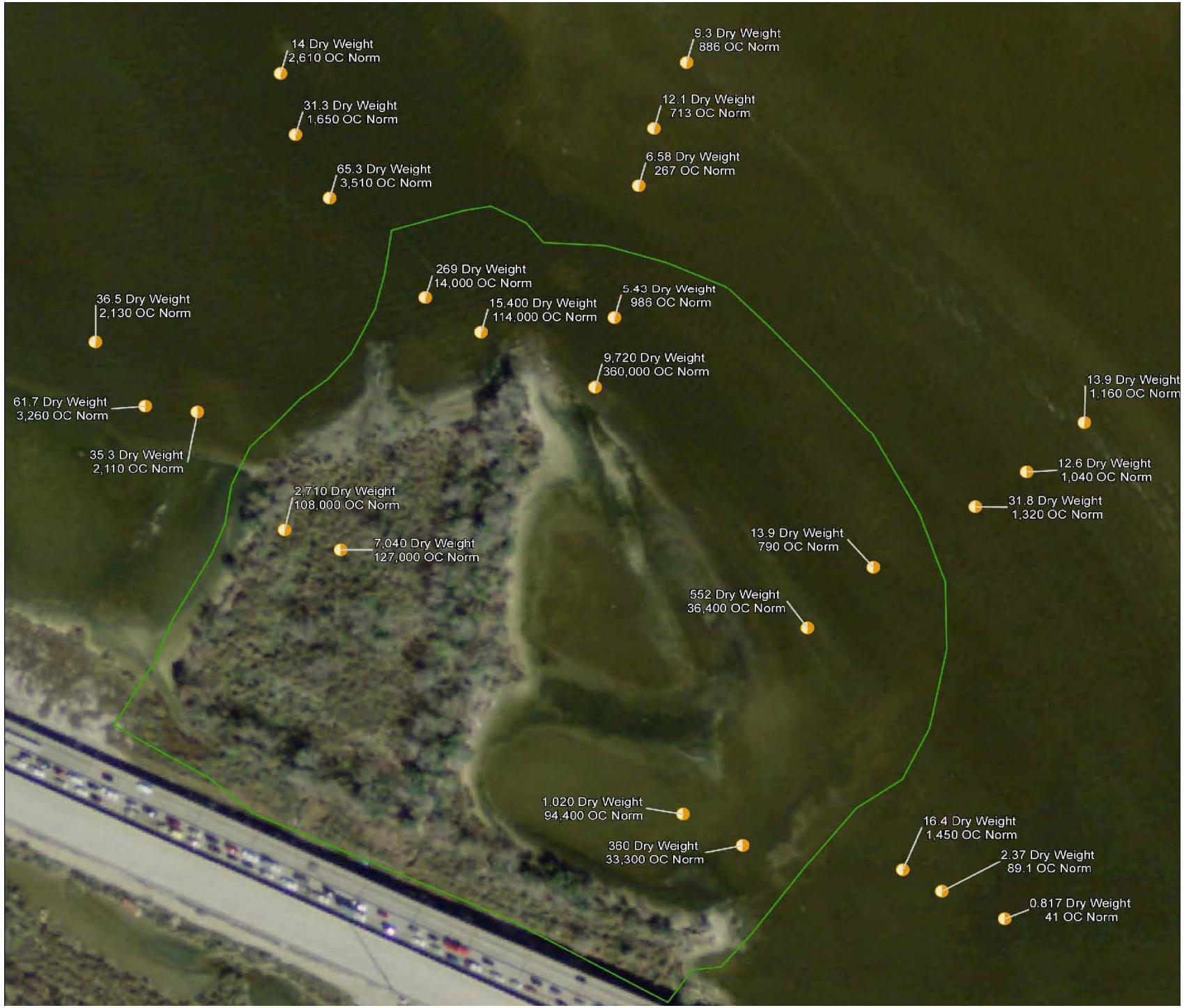
SOURCE STABILIZATION, cont.

- Additional sampling for containment
  - Purpose
  - Sediment and surface water
  - Near original 1966 berm location
  - Results of sampling

- TCRA Memorandum
  - Purpose
  - Sources of contamination
  - Source Stabilization / Source Control
  - Draft Tech Memo 06.02 and Revision on 06.15

SOURCE STABILIZATION, cont.

Sample Location	Result TCDD (ng/kg)	Sample Location	Result TCDD (ng/kg)	Sample Location	Result TCDD (ng/kg)	Sample Location	Result TCDD (ng/kg)	Sample Location	Result TCDD (ng/kg)
A1	7,040	B1	15,400	C1	9,720	D1	552	E1	1,020
A2	2,710	B2	269	C2	5.43	D2	13.9	E2	360
A3	35.3	B3	65.3	C3	6.58	D3	31.8	E3	16.4
A4	61.7	B4	31.3	C4	12.1	D4	12.6	E4	2.37
A5	36.5	B5	14	C5	9.3	D5	13.9	E5	0.817



1 - San Jacinto\09055701-RP-038.dwg FIG 2

SOURCE STABILIZATION, cont.

- TCRA Memorandum
  - Evaluation (Effectiveness, Implementability, Cost)
  - Technologies (Removal, Treatment, Containment)

- Containment
  - Alt. 1, Sheet Pile & Granular Cover
  - Alt. 2, Sheet Pile, Granular Cover, Dredge, & Revetment
  - Alt. 3, Granular cover and revetment
  - Alt. 4, Rock berm, granular cover, and revetment
  - Alt. 5, ACBM and dredge

SOURCE STABILIZATION, cont.

- TCRA Memorandum – concerns raised
  - Minimize public health / enviro. threat
  - Prevent spread and movement of contamination
  - Storm event design number
  - Prevent impacts from flooding upstream
  - Prevent impacts from scouring on I10 bridge downstream
  - Combination of technologies (i.e. removal w/ containment)

SOURCE STABILIZATION, cont.

- Finish review of TCRA memo
- Issue decision document
- Review draft TCRA work plan
- Review draft TCRA health and safety plan
- Begin construction of TCRA removal

NEXT STEPS

- Implement source stabilization activities.
- Define nature and extent of site.
- Evaluate long-term cleanup alternatives.
- Issue Record of Decision.
- Continue joint watershed management solutions with USACE and TCEQ.

REFERENCES

- USEPA 2005 Contaminated Sediment Remediation Guidance for Hazardous Waste Sites: http://www.epa.gov/superfund/health/conmedia/sediment/guidance.htm

- Public announcement on CWA 404 and RHA 10 permitting process within the permits area of concern boundary: http://www.swg.usace.army.mil/pao/Docs/SanJacinto.pdf