San Jacinto River Waste Pits: 2016 Studies

Preliminary Results and Analyses

September 8, 2016

Summary of Results: Sediment, Groundwater

- Sediment
  - TEQ_{DF} concentrations in surface sediment are dropping, especially on the north and west sides of the northern impoundments
  - All TEQ_{DF} concentrations in surface sediment are well below the sediment protective concentration level of 220 ng/kg

- Groundwater – North of I-10
  - Targeted compounds not detected
  - All wells in compliance with the Texas SWQS
  - No evidence of mobility to surface water

- Groundwater – South of I-10
  - All wells in compliance with the Texas SWQS, except two drilled directly into wastes
  - No evidence of mobility to surface water

Summary of Results: Surface Water, Porewater, Fish Tissue

- Surface water (unvalidated data)
  - Largest drop in TEQ_{DF} concentration is at the impoundments north of I-10
  - Second largest drop in TEQ_{DF} concentration is within the USEPA's preliminary Site perimeter, at the I-10 bridge

- Porewater (unvalidated data)
  - All non-detect

- Gulf killifish tissue (unvalidated data)
  - TEQ_{DF} concentrations in whole Gulf killifish at the waste pits about the same as upstream and downstream stations

Sediment Data

- Samples from 11 stations for nature and extent
- Samples from 17 stations for comparison of 2010 vs. 2016

Samples Collected to Address
Study Element 1. Nature and Extent Evaluation

TCRA Sediment Stations Reoccupied to Address
Study Element 3. Physical CSM and Fate and Transport Evaluation

Nature and Extent Stations Reoccupied to Address
Study Element 3. Physical CSM and Fate and Transport Evaluation

Original 1966 Perimeter of the Impoundments North of I-10

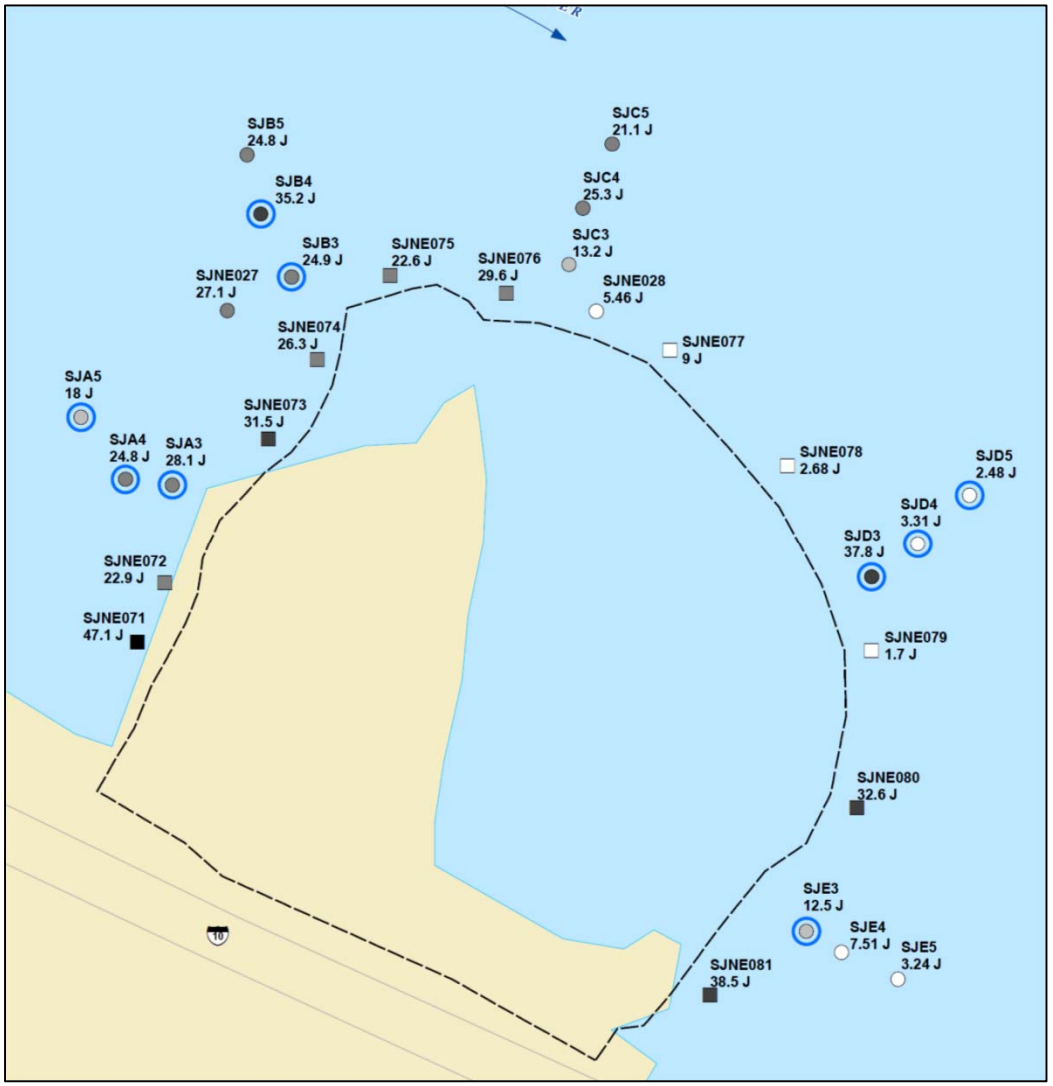
Approximate TCRA Footprint

CSM Conceptual Site Model

FEATURE SOURCES:
Aerial Imagery: 1-Foot USGS EROS

TEQ_{DF} in Surface Sediments, 2016

- 2016 TEQ_{DF} concentrations are lower than in 2010 at the majority of locations sampled in both years
- TEQ_{DF} concentrations are all less than sediment PCL 220 ng/kg



Surface Sediment Sample Location Sampled in 2010 and 2016 TEQ Concentrations (ng/kg)

- < 10
- 10 - 20
- 20 - 30
- 30 - 40

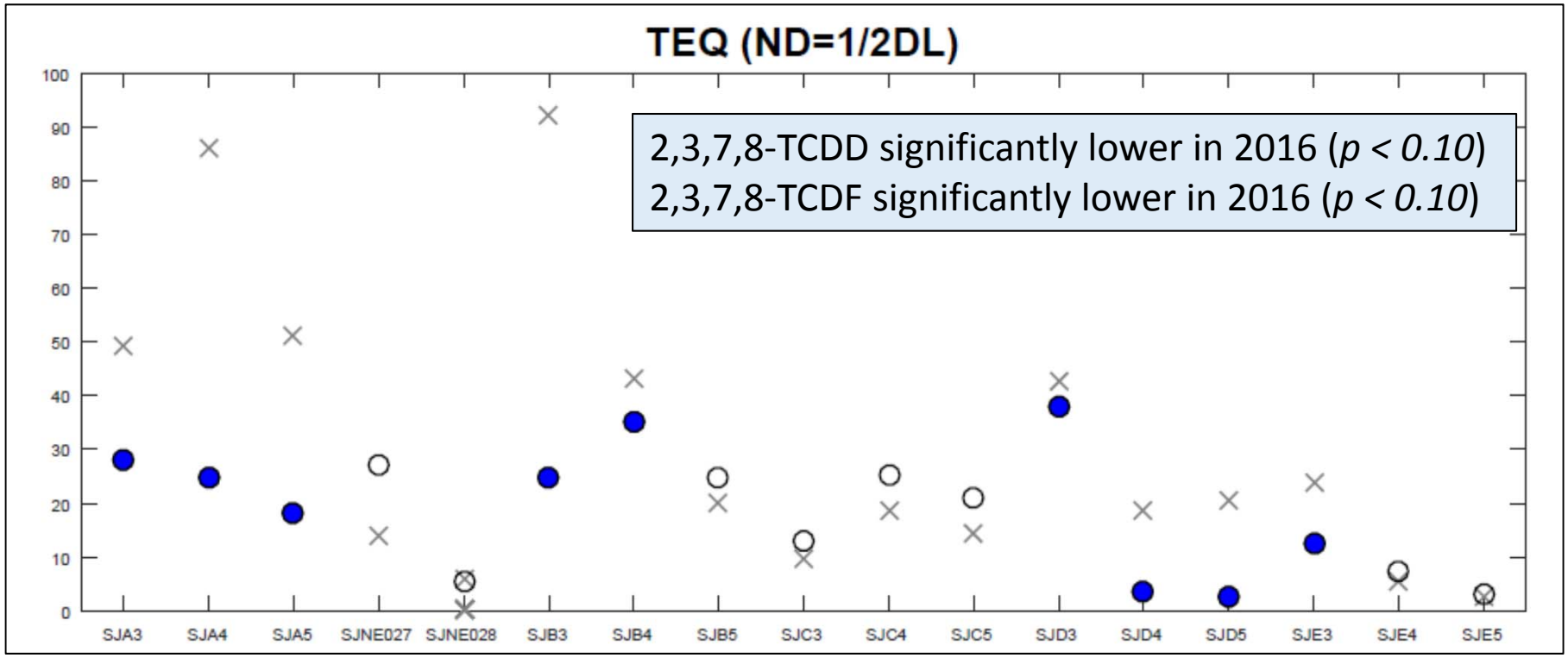
TEQ is Less Than 2010 Concentration

Surface Sediment Sample Locations Sampled Only in 2016 TEQ Concentrations (ng/kg)

- < 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50

Original 1966 Perimeter of the Impoundments North of I-10

TEQ_{DF} in Surface Sediments: 2010 vs. 2016



Notes:
- 2016 sediment
- 2010 sediment

- TEQ_{DF} concentration is lower in 2016 than in 2010

Groundwater Data - North

- Groundwater sampling conducted using passive samplers
- Four shallow wells north of I-10
- Target compounds <u>not detected</u>
- All wells meet TSWQS
- No evidence of transport to surface

Groundwater Wells Sampled in 2016

Groundwater Wells Sampled in 2011

Original (1966) Perimete of the Northern Impoundments

Groundwater Data - South

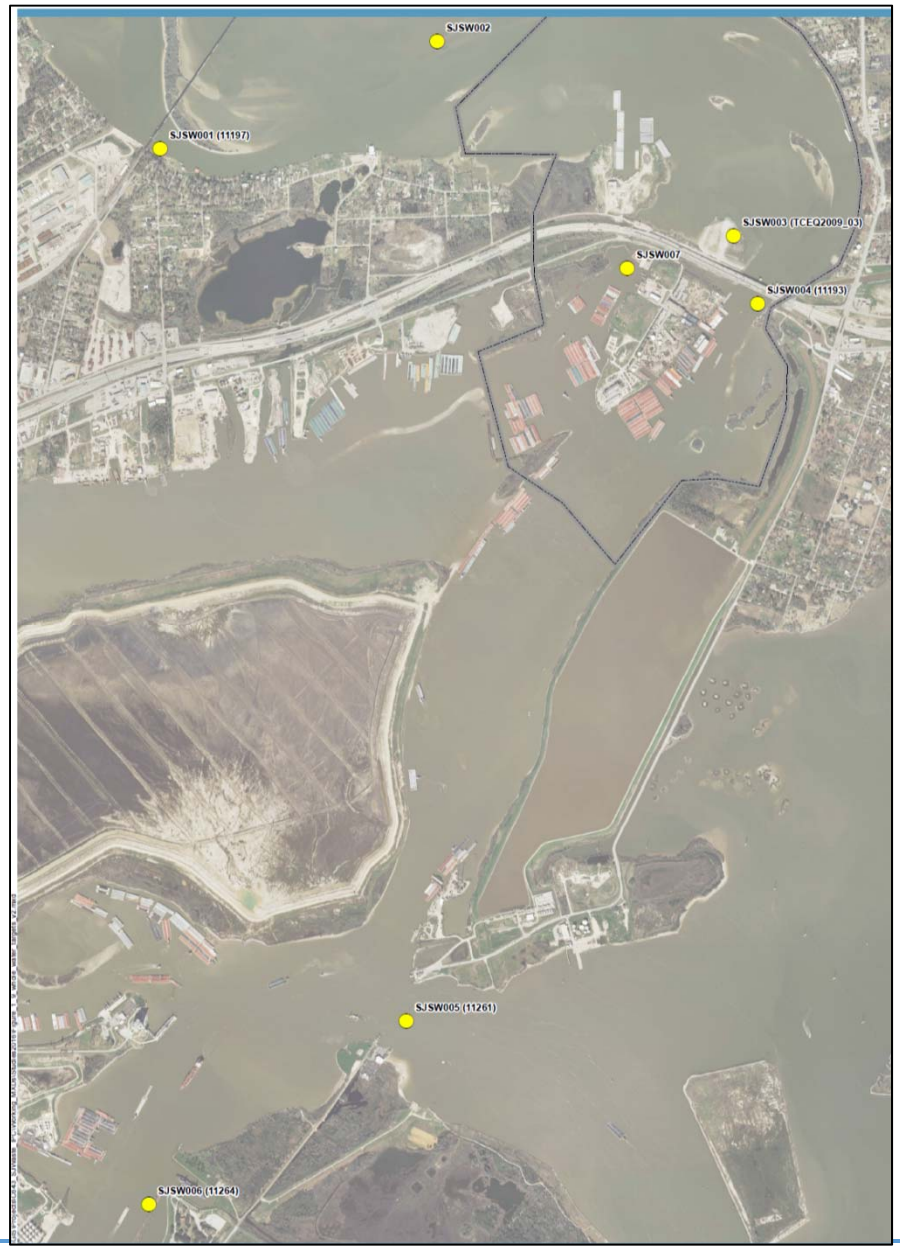
- Nine shallow wells and one deep well south of I-10
- Target compounds not detected in 8 of 10 wells
- 8 of 10 wells meet TSWQS
- TCDD and TCDF detected in shallow wells drilled into the waste
- No evidence of transport to surface water

Groundwater Wells Sampled in 2012, 2013 and 2016

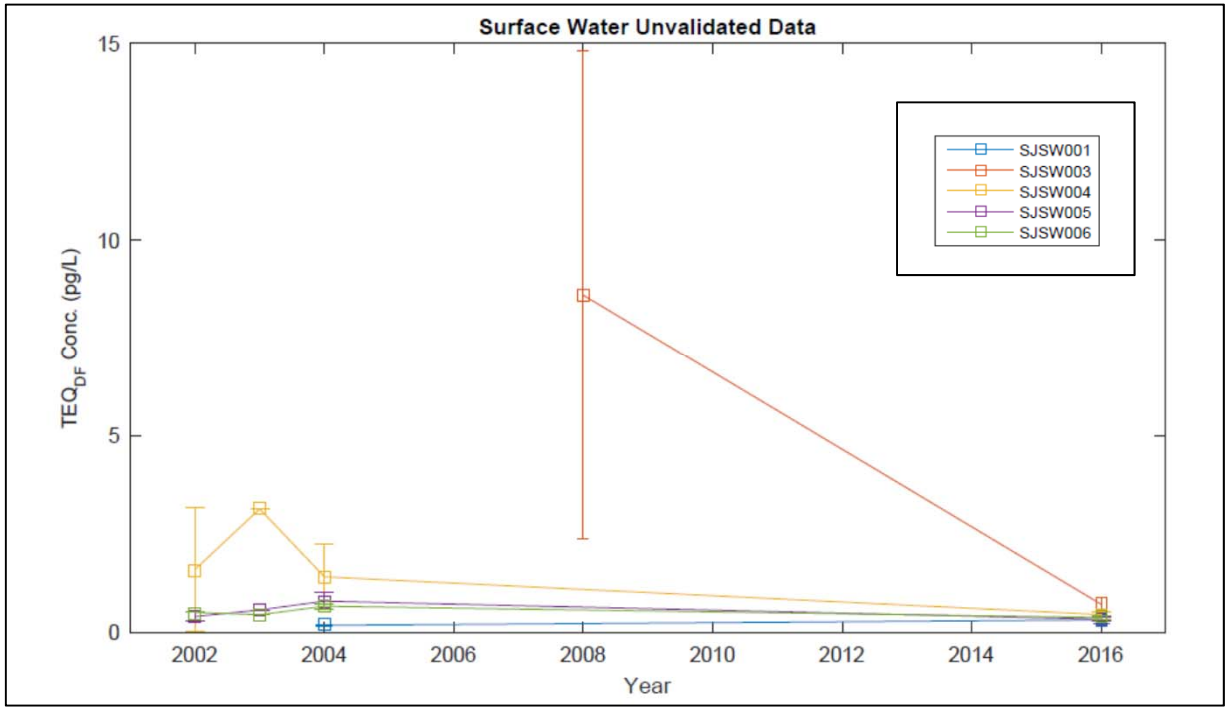
Groundwater Wells Sampled in 2013 and 2016

Surface Water Data (Preliminary)

- Samples were collected from locations previously sampled by the Texas Commission on Environmental Quality
- Analysis approach: compare 2016 with past TEQ_{DF} concentrations
  - Evaluate the magnitude of the difference between pre-TCRA and post-TCRA water quality at each location



Surface Water TEQ (Preliminary)



- Largest reduction in TEQ_{DF} concentration in surface water is at the impoundments north of I-10 (SJSW003)
- Second largest reduction is at the I-10 bridge (SJSW004)

TCRA Cap Porewater (Preliminary)

- Target compounds <u>not detected</u>