

San Jacinto River Waste Pits Superfund Site Technical Document Review: Exposure Assessment Memorandum

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What is an Exposure Assessment Memorandum?

The EPA directs respondents to prepare an Exposure Assessment Memorandum (EAM) prior to the Baseline Human Health Risk Assessment report. Sampling has shown that contaminant concentrations, especially dioxins and furans, were high when compared to *screening values*. Screening values are risk based, but are based on general information, they are not site specific. So, the responsible parties are collecting and analyzing site-specific data to develop a more accurate way to evaluate the risk from the Site as part of the Remedial Investigation process. This memo is intended to describe:

- The exposure scenarios, or the ways that humans may come in contact with the contaminants
- Any assumptions that will be made about that contact
- Information on how the contamination is expected to move, called *fate and transport* modeling,
- What data will be used in the analysis.
- What calculations will be used to determine risk

What are the Exposure Pathways and Scenarios?

Two different exposure pathways were evaluated. For the area north of I-10 and aquatic environments the humans potentially exposed would be fishers and recreational visitors. But, because the area south of I-10 is developed and managed for commercial and industrial activity, industrial workers and trespassers are the human receptors with the highest potential for exposure in this area.

Area north of I-10 and Aquatic Environments

Fishers and visitors could be exposed to chemicals from the Site by:

- Ingestion (eating), chemicals in sediment, soil, water, fish, and shellfish
- Skin contact with chemicals in sediments, soil, and water
- Breathing chemicals in air

The report went on to note that in the direct contact with surface water and inhalation of the chemicals at concentrations that would be of concern were unlikely, so while these potential exposures would be discussed, they would not be analyzed mathematically. The report also noted that someone trespassing would be exposed similar to a visitor or fisher, but that the trespasser would likely have less exposure because they would probably not be there as long or as often as a visitor or fisher.

The area south of I-10

Industrial workers and trespassers in this area could be exposed to chemicals from the Site by:

- Ingestion of chemicals in soils
- Skin contact with chemicals in soils
- Breathing chemicals in air

Similar to the area north of I-10, breathing the chemicals was considered less likely than ingesting or touching the chemicals.

Datasets needed for the Exposure Assessment

In order to evaluate the human exposure via the pathways listed above, data for sediments, fish, shellfish, and soils are required.

Sediment

People could be exposed to surface sediment in accessible shoreline areas of the Site, the human health risk assessment will evaluate sediments covered by 2 ft of water or less were for direct contact. Sediment samples from five shoreline beach areas were collected to be used in characterization of human exposures. See Fig 7 from the Exposure Assessment Memorandum, which is at the end of this technical review.

- Beach Area A —the shoreline to the west of the shipping berth on the property west of the impoundments;
- Beach Area B/C —the eastern shoreline of the sand separation area and the shoreline between the sand separation and west side of the impoundments;
- Beach Area D— the shoreline on the east side of the channel under the I-10 Bridge, and downstream; and
- Beach Area E—the shoreline of the river channel at the southeast corner of the waste impoundments.

Fish and Shellfish

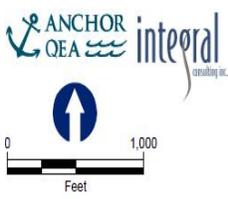
Catfish fillet data will be used to estimate exposures from eating (catfish usually have higher concentrations of dioxin and furans than other similar kinds of fish). Edible crab and clam tissues data will be used to estimate exposure from eating shellfish.

Soils

The human health risk assessment will analyze soil that fishers and recreational visitors in north of I-10, workers and trespassers in south of I-10 might touch. Surface soil data will be used to evaluate the exposure (in the north 0 to 6 in, 0 to 8 in, 0 to 12 in, 0 to 24 in. In south also soils from 6-12 in will also be used. Much of the soil data was collected before the Time Critical Removal Action (TCRA) was completed. Six soil samples were collected after the TCRA within the area currently accessible to public.

Conclusions

The screening levels indicated that dioxins and furans are high in sediments from the impoundments north of I-10 and that they are probably the most important risk driver at the Site. Because of this, it is likely that eating fish and/or shellfish will play an important role in the overall risks for the Site. The Baseline Human Health Risk Assessment report will give us better information on what the specific risks related to the Site are likely to be.



- Surface Sediment Sampling Locations
 - Exposure Unit Designation
 - ▭ USEPA's Preliminary Site Perimeter
 - 0 Contour (NAVD 88)^a
 - -2 (feet)^b
 - -1 (feet)^b
- Notes: ^aTidal conditions under which this contour was measured are unknown.
^bContours reflect pre-TCRA conditions.

Figure 7
 Exposure Units for Sediment, Area North of I-10 and Aquatic Environments, Pre-TCRA
 SIRWP Exposure Assessment Memorandum
 SIRWP Superfund/MIMC and IPC