SAN JACINTO RIVER COALITION

September 11, 2015

Mr. Gary Miller
Remedial Project Manager
San Jacinto River Waste Pits Superfund Site
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Comments on Army Corps of Engineers August 2015 Draft Final Evaluation of SJWP FS Remedial Alternatives

Dear Mr. Miller,

The San Jacinto River Coalition (SJRC) appreciates the Environmental Protection Agency (EPA) requesting the U.S. Army Corps of Engineers *Evaluation of the San Jacinto Waste Pits Feasibility Study Remediation Alternatives* (USACE Report). The responsible parties (RPs) Feasibility Study (FS) lacks objectivity and crucial data, which has complicated the Superfund process for the San Jacinto River Waste Pits (SJRWP).

The USACE Report repeatedly highlights uncertainties associated with alternative 3N that further supports our viewpoint that alternative 3N is not an acceptable long-term solution. The evaluation provides new and useful information that we hope will bring the EPA closer to a more appropriate remedial alternative that will fulfil their mission *to protect human health and the environment.* Best Management Practices (BMP) expressed throughout the USACE Report are greatly encouraged to meet "EPA's policy on management of principal threat wastes as stated in the National Contingency Plan (40 CFR 300.430(a)(1)(ii)).). That policy can be summarized as: *EPA expects to use treatment to address the principal threats posed by a site, wherever practicable...EPA expects to use engineering controls, such as containment for waste that poses a relatively low long-term threat or where treatment is impracticable.*" (Garland, 2015). Due to the substantial long-term threat of the waste which comprises the Waste Pits, the SJRC asks the EPA to consider cleanup levels in accordance with the most recent EPA guidelines for dioxin contaminated sites. We request the cleanup goal be for residential soil (50 ppt) as the Waste Pits are in a river of high recreational use surrounded by highly residential land use.

If the **source** is removed, so is the long-term risk for release and further toxic exposures. It shouldn't be too much to ask that a remedy for full-removal is developed using sound science. We need this problem solved now, once and for all. We appreciate your consideration of our comments on the USACE Draft Report.

Thank you,

Jacquie Young

Jacquelyn Young
Executive Director
San Jacinto River Coalition

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Executive Summary

The executive summary is extremely misleading and of great concern as this is the document that the public. Policymakers, and stakeholders are most likely to read. The executive summary is not a true representation of the full report. It is highly suggested that the executive summary is rewritten to better represent the full report.

Background

PRP and RP language in the background section, as well as throughout the report, is confusing and lacks consistency. For example:

1) *an evaluation of modeling performed by the modeling contractor for the Potentially Responsible Parties (**PRP**),*
2) *an evaluation of the design of the temporary armor camp, and*
3) *review of the Feasibility Study submitted by the **RP**.*

Task 2-Perform an assessment of the San Jacinto River (SJR) flow/hydraulic conditions and river bed scour in and around the Site for severe storms, hurricanes, storm surge, etc., using surface water hydrology model(s) appropriate for the Site. In the assessment include an evaluation of potential river bed scour/erosion in light of the historical scour reports for the Banana Bend area and for the SJR south of the I-10 Bridge.

It is imperative that scour and erosion *at the Waste Pits geographic location (*emphasis added) is understood. A *Flood Risk Assessment* by Dr. Samuel Brody states that, "severe tropical storms can cause large amounts of surface runoff that can produce high volume and velocity flows at the waste site. For example, a major flood in 1994 caused the San Jacinto River to rise by nearly 27 feet resulting in rapidly moving water with scouring flows."

The USACE Draft Report states:

> *The SJR Waste Pits are located in a FEMA designated floodway zone, which is essentially the 100-year floodplain for the SJR.* (page 6)

According to FEMA, "A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height". Storage of toxic waste in this zone is *not* safely reserving the floodway for discharge of floodwaters. Rather, it is knowingly leaving highly toxic, bioaccumulative, and persistent chemicals in harm's way.

There is no possible way to predict the order, force, magnitude, and frequency of variables modeled. This creates uncertainty when trying to evaluate/model what actual scour and erosion rates will be. These uncertainties further support why alternative 3N is not an appropriate long-term remedy.

Task 3- Perform an evaluation of the models and grid cell sizes used by the PRPs for the Site, and include a discussion of any uncertainties in the model results. The evaluation should include a review or the model assumptions regarding bed shear stress, water velocities, and scour.

As stated above, local data is imperative. Data locations used for modeling lack consistency. "Historical crest records from a USGS gage indicate that the Waste Pits have been exposed to potentially high-scouring flows at least 27 times since 1973 (Bedient, 2013). During these events

the waste pits can remain submerged under water for days at a time" (*Flood Risk Assessment,* S. Brody, 2014)

Task 5 and 6-Perform a technical review of the design and construction of the entire existing cap as it is currently configured.

Page 36:

> *The capped sediment consists predominantly of a soft, compressible, organically rich sludge.*

Do we know for certain that 59,000 tons of crushed concrete plus additional concrete would not cause a release of sludge from the bottom of the cap?

Multiple statements further illustrate why the armored cap is not an effective long-term solution to protect human health and the environment.

Page 38:

> *The armor cap material does not have a significant quantity of organic carbon to retard contaminant transport. In addition, the large pore structure of the armor cap mater would permit a large exchange of water within the cap.*

Page 39:

> *Regardless of whether resuspension losses occur, there are potential contaminant losses by diffusion, porewater expulsion, tidal pumping and groundwater seepage...the armor cap material does not have a significant quantity of organic carbon to retard contaminant transport.*

Task 7- Assess the long-term reliability (500 years) of the cap under potential conditions within the San Jacinto River, including severe storms, hurricanes, storm surge, subsidence, etc.

There is a continued theme of uncertainty and a lack of data throughout the report and particularly in task 7. This task addresses crucial elements and it is unacceptable to have uncertainties and shortages of data when considering long-term reliability to prevent further releases of highly toxic materials. When assessing the long-term reliability of *In situ* containment for principal threat waste, EPA's *Guidance for In-Situ Subaqueous Capping of Contaminated Sediments* should also be considered.

Impact of Floods: The Waste Pits are located on the most threatened coast in the United States by hurricanes. Not simulating hurricanes or the worst case scenario at the Site is absolutely unacceptable. "It is important to understand there is a very real risk that dioxin-contaminated sediment could be scoured from the site due to surge or overland flow and dispersed into surrounding areas. Moreover, subsidence, flooding and hurricane surge will continue to happen and will likely continue to degrade the structural integrity and viability of these waste pits leaving more potential for dioxins to make their way into the natural environment. Due to these risks it is *imperative* that future decisions regarding the waste pits take into account the physical, social, and flood related contexts of the site" (*Flood Risk Assessment,* S. Brody, 2014).

Impact of Propwash: As stated on page 42, data was not available to analyze potential scour from prop wash. Not having necessary data to complete tasks is unacceptable.

Impact of Changes in River Morphology: The ability to predict such impacts is not feasible on a 500 year scale, further supporting the substantial unknowns and uncertainties related to the long-term reliability of a containment structure.

Impact of Subsidence: Page 1 of the report states that:

> *Large scale groundwater extraction has resulted in regional subsidence of land in proximity to the Site that has caused the exposure of the contents of the northern impoundments to surface waters.*

Page 45 states that the long-term rate of subsidence…

> *Is not well known and cannot be predicted with any reliability.*

We cannot predict what the rates of subsidence will be in 500 years.

Task 8-Assess the potential impacts to the cap of any barge strikes/accidents from the nearby barge traffic

In recent years, barge traffic and storage near the Waste Pits has increased drastically and presents a real and serious threat. Given this, we appreciate the impacts of barges and propwash being considered.

As stated in the USACE report:

> *Therefore, there is about a 1 in 100 probability of a pushboat having a significant strike in a year or a 1 in 12 probability of a minor strike in a year. However, the probability of striking a particular location such as the San Jacinto cap would be a small fraction of that total probability, but perhaps as much as 25% of total probability due to proximity of barge operations, yielding an effective probability of 1 in 400 for a significant strike in a year or 1 in 50 for a low severity impact strike in a year.* (page 46)

Sunday, September 6, 2015, a resident estimated 70 barges parked near the Waste Pits.
Wednesday, September 9, 2015, a resident estimated 35 barges near the Waste Pits.

Due to heavy barge traffic in close proximity to the Waste Pits, we feel that the probability of a strike is greater than the USACE Report estimates. As we have recently seen at the Animas River, tragic accidents happen. A difference between the Animas River release and a potential release at the SJRWP is that the San Jacinto River would not turn orange. There may not be any visible indication of release for an unknown duration.

Furthermore, the USACE says:

> *If the barge were to strike the slope head-on, which is a potential mode of action because the currents run up the slope in portions of this area, the barge would ride up the slope until the barge is grounded or beached.* ***The grounded barge would shear the armored layer and push armor up the slope during grounding and pull armor down the slope during barge removal, exposing perhaps as much as a thousand square feet of the sediment.*** *The weight of the barge would drive the bottom of the armor cap under the barge into the sediment and promote mixing with the cap. Additionally,* ***the weight of the barge on the top of the slope may induce a slope failure,*** *pushing out the toe and uplifting sediment at the toe and exposing additional sediment.* (page 48-49)

This type of event, and more so in flood conditions, would cause devastation to the environment, public health, Galveston Bay and the local fishing industry. A single strike could be catastrophic and it would leave stakeholders scrambling in attempt to stop the uncontrolled release of highly toxic waste. Rather than reacting to such an event, the EPA must take a proactive approach and fully remove the Waste Pits.

Furthermore, the language on page 48 of the USACE report is misleading:

> ***This area of the armor cap will be modified to a 1V:3H slope as described in Alternative 3N****, which will thicken the cap and improve the stability of the slope and limit the sloughing and sediment exposure to perhaps five hundred square feet.*

This statement could lead one to believe remedy 3N was selected as the final remedy.

Task 9- Identify what institutional/engineering controls should be incorporated into the remedial alternatives for the TCRA area and surrounding waters and lands

Page 55:

> *Large scale groundwater extraction has resulted in regional subsidence of land in proximity to the site, which has caused the exposure of the contents of the northern impoundments to surface waters.*

Admittedly, subsidence has effected the Waste Pits in the past, and we cannot know for certain how much the land will subside in the future. What we do know for certain is that local populations and industrial businesses continue to grow which leads to increased extraction of groundwater. Most municipalities use a minimum of 20% groundwater and there are over 1,000 privately owned groundwater wells within five miles of the Waste Pits. See Figures 1 & 2.

USACE report states that:

> *It is unclear whether water-side perimeter controls are sufficient. Access to the site by boat is currently constrained to the north, west, south, and southeast by industrial use and navigational hazards (Anchor QEA 2014).* (page 63)

The photos below make it clear that the water-side perimeters of the Waste Pits are still being accessed by fisherman. The current controls *are not* sufficient. (Photos 1 and 2 show people fishing via boat on the northeast corner of the Site)

Photo 1 - SJRWP July of 2015

Photo 2 - SJRWP August of 2015

Page 64:

> *However, procedures are not currently in place to alert future landowners of the TCRA Site to the potential risk of exposing the capped sediment (Anchor QEA 2014). There are also no current restrictions on dredging or anchoring at the Site.*

The SJRC strongly encourages the EPA to put procedures in place to notify local residents and landowners when remedial activities are taking place. During the 2011 TCRA most local residents had no idea that the visible construction was to 'contain' highly toxic waste in the River. Had we known this, we likely would not have recreated in the river during that time.
Page 65 of the USACE Report states the level of personal protective equipment (PPE) that was worn during the TCRA cap construction. However, community members observed workers on Site that were *not* wearing Level D PPE. Had we observed workers in Level D PPE, we would've been more concerned about the construction we witnessed.
Level D PPE described briefly per the Occupational Safety and Health Administration (OSHA) standards: Coveralls, gloves, boots (chemical resistant), boots (outer chemical resistant disposable covers), safety goggles, hard hat, escape mask, face shield. It is critical to also ensure the safety of those on-site during remediation.

Photo 3 - SJRWP TCRA Summer 2011

Task 10-Identify and document cases, if any, of armoring breaches or confined disposal facility breaches that may have relevance to the San Jacinto Site evaluation

The USACE Report states that there don't appear to be any document cases of armored cap breaches. However, there have been breaches to other types of confining structures and such breaches were discovered during routine maintenance. IF this were the case at the Waste Pits, what would the impacts to human health and the environment be if a release were taking place for an unknown length of time? Task 10 and the lack of a long-term (500 years) understanding of the effectiveness of containment structures allows little confidence in any alternatives but full removal. Furthermore, the SJRWP TCRA temporary cap *has* proven to be structurally problematic, needing repair multiple times in 4 short years. Most recently, the TCRA temporary cap experienced erosion during a flood event that was considered less significant than a 10-year flood. This should be addressed in the USACE Report.

Task 11- Assess the potential amount or range of sediment resuspension and residuals under the various remedial alternatives including capping, solidification, and removal

The remedial alternatives detailed in the RP's FS are skewed to depict containment (alternative 3N) as the best remedy. One of the major flaws of the USACE Report is the heavy reliance on the RP's justification documents (RI/FS). Despite this, the USACE Report discusses best management practices (BMP) that allow us to draw conclusions of what a full-removal remedy should look like.

To be more specific:

- Silt curtains, as recommended for 6N, are not the most effective method to control sediment loss
    - Page 104:

Silt curtains do very little to control losses at the bottom of the water column... silt curtains may also increase turbidity and scour along the bottom due to movement along the bottom as well as increased current velocities underneath the curtain.

- It is completely unreasonable to drive sheet piling into the existing TCRA temporary cap for any remedial alternative.
    - Rather, sheet piling or a cofferdam should be installed beyond the Site perimeter
    - Page 73 supports the importance of sheet piling placement:

The contaminant mass loss is considerably lower for Alternative 5aN because the ***location*** *of the sheet pile wall had a lower sediment contaminant concentration.*

- Removing the TCRA temporary cap, prior to dewatering the Site, is a terrible idea.
    - Rather, the entire Site should be isolated and dewatered
    - Then, the TCRA temporary cap could be removed one cell at a time and excavated in the dry, one cell at a time
- A mechanical clamshell was assumed to be the best method for removing the contaminated sediment. See photos 4 and 5.

The USACE Report stated in conclusion:

> *This assessment showed that there is potential for significant sediment losses depending on the methods used for remediation. Any remediation, solidification or dredging, that occurs should be completed in the dry to minimize the amount of resuspension losses and residuals that may be exposed to the water column...* ***all activities completed in the dry, having a sheet pile wall barrier protecting the water from interacting with contaminated sediment will result in very small amounts of resuspension,*** *and will have limited exposure to the water before the permanent cap is placed over the residual layers.* (pages 88-89)

Comment on Table 11-20: We would like Alternative 6N broken down into BMP categories for wet and dry, as Alternative 5N is.

Photo 4. Clamshell Dredging in New York Harbor

Photo 5. Clamshell Dredging in the Boston Harbor

Photo 6. Cellular Cofferdam on the Ohio River

Task 12 – Identify and evaluate techniques, approaches, BMPs, temporary barriers, operational controls, and/or engineering controls to minimize the amount of sediment resuspension and sediment residuals concentrations during and after dredging/removal.
Page 94, to further support the conclusions stated above:

> *Structural barriers should be considered if there is uncertainty that a silt curtain will be effective, or for containment of resuspended sediments that contain highly mobile,* ***highly toxic, or biaccumulative contaminants****... Structural walls (e.g., sheet pile deflection walls) can also be used to partially shield silt curtains from high current velocities.*

Page 95:

> *Controlling resuspension is the first step to controlling release of contaminants because the vast majority of dioxin and furans are associated with the sediment particles.*

Page 100:

> *It is difficult to understand how the armor cap material could be readily removed without snagging and disturbing the geotextile and sediment, particularly if performed underwater... If dewatering is possible, working in the dry would significantly reduce contaminant transport from resuspension and release.*

Page 106 BMP contrary to FS

> *Although, the FS assumes a certain degree of leakage of these barriers, careful installment and management will optimize efficiency.*

The SJRC appreciates the BMP offered by the USACE Report and would like the EPA to contract with an independent consultant to develop a remedy for full remediation (down to a minimum contamination of 50 ppt) based off of BMP and technologies.

Task 12 clearly shows that a full removal alternative *is* technically feasible. Additionally, full removal satisfies at least 6 of the 9 evaluation criteria in the National Contingency Plan (40CFR300.430(e)(9)):

- Overall protection of human health and the environment
- Long-term effectiveness and performance
- Reduction of toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Community acceptance

Task 16- Project the long-term (500 years) effects of the capping alternative (3N) compared to the full removal alternative (6N) on water quality
As we know, the RP's have taken the unusual step in recommending and advocating for a particular remedial alternative (3N). However, the community living nearest the Site and local stakeholders do not accept alternative 3N and advocate for alternative 6N (or better). The RPs recommendation of a remedial alternative has led to an unnecessary and lengthy tug of war. The Executive Summary, in addition to Task 16, clearly illustrate this. The Superfund process for the SJRWP has been tainted and delayed by RP's advocating for what they believe is the cheapest and best alternative. Not only does the SJRC request that the EPA contract with independent consultants (not the RP's hired consultants) to develop a full removal alternative, we request a further analysis of costs associated with all remedies on a long-term (500 years) scale. If we look

at the long-term costs of monitoring, institutional controls, operations and maintenance, enforcement, implementation, and potential impacts to human health and the environment, alternative 6N likely will not be the most expensive remedy.

Task 16 further demonstrates the many uncertainties with 3N, as all components of 3N could not be accurately modeled. The efficiency of the TCRA temporary cap is currently being given an advantage by a lack of monitoring and data. There is little evidence that the current TCRA temporary cap is working effectively. More testing needs to be done.

When developing a remedy to ultimately protect human health and the environment, we should not rely on a remedy with so many uncertainties and unknowns. We can hardly predict the amount of rainfall over the next week, let alone over the next 500 years.

Task 18- Assess the potential for release of material from the waste pits caused by storm occurring during a removal/dredging operation; identify and evaluate measures for mitigating/reducing any such releases.

> *If a storm, e.g., tropical storm or high flows in the SJR, occurred during the actual removal/dredging operation, the likelihood of extremely significant releases of contaminated sediment occurring is very high.*

However, the findings further discuss storing materials and equipment on site to build a temporary barrier to further protect such a release from occurring. Mitigation measures, such as excavation in stages and extra protective barriers must be incorporated into the remedial alternatives.

Task 20- Assess the appropriateness of the preliminary sediment remediation action level of 220 *ng/kg* in consideration of the appropriate exposure scenario (recreational vs. subsistence fishing), and in consideration of an appropriate Relative Bio-Availability (RBA) factor; and recommend an alternative sediment action level as appropriate

Page 166:

> *A fundamental problem exists for the feasibility study... this is significant since consumption of fish and shellfish accounts for 95% or more of the dioxin and furan exposure to child recreational fishers... RAOs designed to address the majority of risk to child recreational fishers are needed.*

When reviewing the risk assessments, it almost appears as it was forgotten by the RPs that their waste was openly exposed for over 4 decades. It is imperative that adequate risk scenarios are assessed. Texas DSHS confirmation of cancer clusters of people of all ages and in children nearby the Waste Pits further supports this.

The SJRC feels a statement on Page 166 needs to be addressed:

> *The data analyses and literature review presented in the Technical Memorandum on Biaccumulation Modeling (Integral 2010) claims that dioxin and furan congeners do not predictably bioaccumulate in fish or invertebrate tissue based on the available tissue data and sediment data.*

According to EPA's *Findings of Fact*, 97% of fish tissue samples taken near the SJRWP exceeded health-based standards for 2,3,7,8-TCDD (dioxin).

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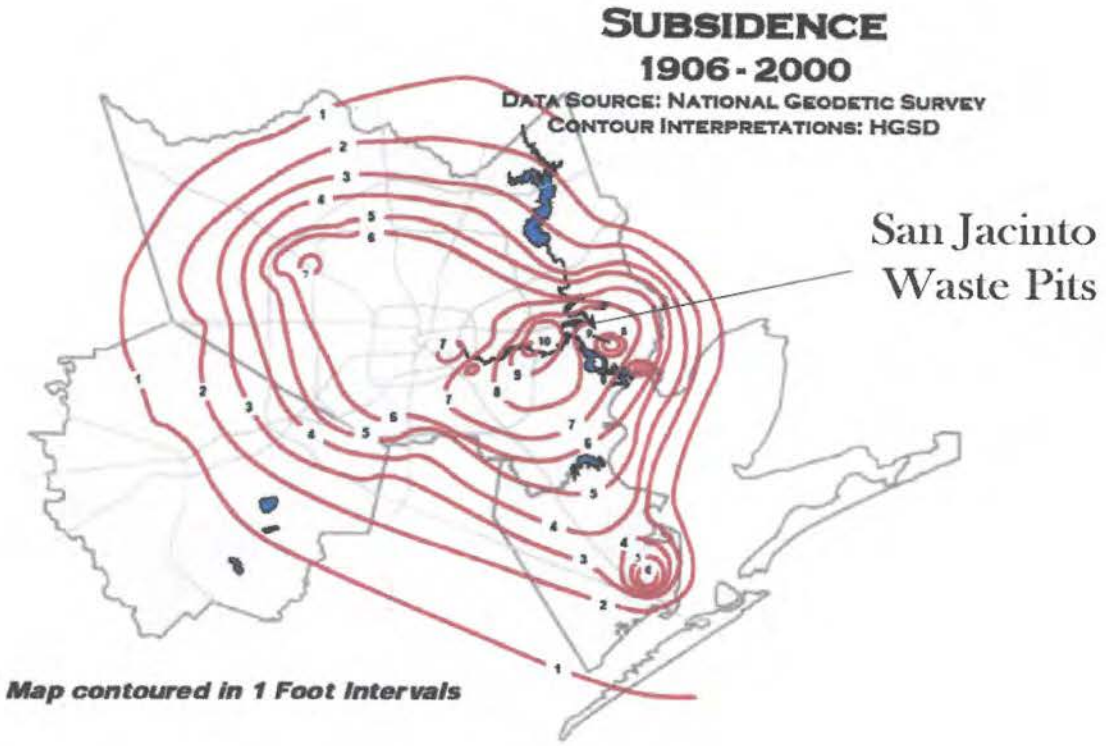
Figure 1.



3262 Westheimer Rd. # 142

Houston, Texas 77098

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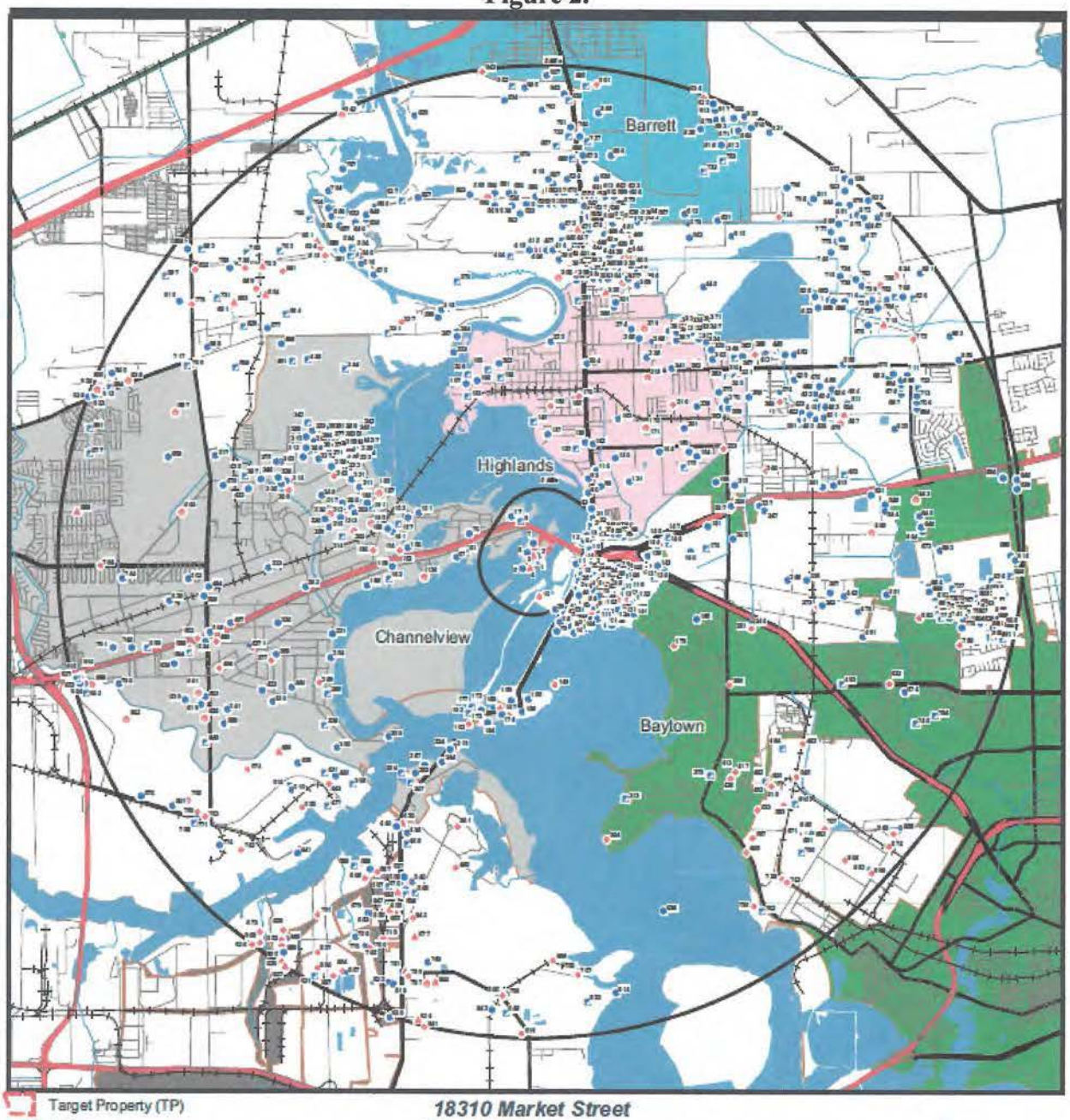
Figure 2.



Target Property (TP)
HGSD
TCEQ
WUD
TWDB
SSDRD
NWIS

18310 Market Street
CHANNELVIEW, Texas
77530

N
W E
S

0' 4250' 8500' 12750'
SCALE: 1" = 8500'

GeoSearch *2705 Bee Caves Rd, Suite 330 - Austin, Texas 78746 - phone: 866-396-0042 - fax: 512-472-9967*

References

Brody, Samuel, Russell Blessings, Kayode Atoba, Will Mobley, and Morgan Wilson. A Flood Risk Assessment of the San Jacinto River Waste Pit Superfund Site. Center for Texas Beaches and Shores-Texas A&M U Galveston, 2014.

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