UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

APR 02 2010

MEMORANDUM

SUBJECT: Request for a Time Critical Removal Action at the San Jacinto River Waste Pits Site, Harris County, Texas

FROM: Valmichael Leos, Remedial Project Manager (RPM)
Remedial Branch, LA/NM/OK Section (6SF-RL)

THRU: Charles Faultry, Associate Director
Remedial Branch (6SF-R)

Mark Hansen, Associate Director
Prevention & Response Branch (6SF-P)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

I. PURPOSE

This Memorandum requests approval of a Time Critical removal action in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604, at the San Jacinto River Waste Pits site (the "site"). The Site is located east of the City of Houston between two unincorporated areas known as Channelview and as Highlands (Attachment 1). The removal action is to stabilize the site, temporarily abating the release of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (and possibly PCBs) into the waterway, until the site is fully characterized and a remedy is selected.

This action meets the criteria for initiating a removal action under Section 300.415 of the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR § 300.415. This action is expected to require less than twelve months to complete.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID#:	TXN000606611
Category of Removal:	Time-Critical
Site ID#:	06ZQ
Latitude:	29.7944
Longitude:	-95.0625

A. Site Description

1. Removal Site Evaluation

In July 2005, seven samples were collected from the Tract of land located on the site for the U.S. Environmental Protection Agencies' (EPA's) Hazard Ranking System Documentation Record report (HRS Report). Each sample was found to contain a combination of the following chemicals, also known as, dioxin congeners. From these seven samples (USEPA UAO 2009), the highest detected concentration of each dioxin / furan congener include:

Congener	parts per trillion (PPT) or nanogram per kilogram (ng/kg)	Sample location
2,3,7,8-Tetrachlorodibenzo-p-dioxin	18,500	SE-08
1,2,3,7,8-Pentachlorodibenzodioxin	363	SE-09
1,2,3,4,7,8-Hexachlorodibenzodioxin	4.83	SE-09
1,2,3,6,7,8-Hexachlorodibenzodioxin	28	SE-09
1,2,3,7,8,9-Hexachlorodibenzodioxin	10	SE-09
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	658	SE-09
2,3,7,8-Tetrachlorodibenzofuran	41,300	SE-08
1,2,3,7,8-Pentachlorodibenzofuran	3,770	SE-lO
2,3,4,7,8-Pentachlorodibenzofuran	2,330	SE-lO
1,2,3,4,7,8-Hexachlorodibenzofuran	8,660	SE-lO
1,2,3,6,7,8-Hexachlorodibenzofuran	2,290	SE-lO
2,3,4,6,7,8-Hexachlorodibenzofuran	349	SE-lO
1,2,3,7,8,9-Hexachlorodibenzofuran	656	SE-lO
1,2,3,4,6,7,8-Heptachlorodibenzofuran	2,360	SE-lO
1,2,3,4,7,8,9-Heptachlorodibenzofuran	878	SE-lO

A recent site visit by EPA Remedial Project Managers Leos and Tzhone on Monday March 1, 2010, documented grayish waste entering the San Jacinto River along the Northwest corner of the site from waste pond 1 (Attachment 3). In addition, 95% of Waste pond #2 was observed to be under four feet of water. Waste pond 2 consisting of two surface impoundments is continually inundated by the San Jacinto River and contaminated sediment within the source area and is in direct contact with the river water as documented in the December 1987, December 1989, February 1992, April 1998, June 1999, May 2002, February 2003, and April 2005 aerial photographs of the Tract (Attachment 6).

There is no containment to prevent the migration of hazardous substances from the waste ponds into the San Jacinto River. Chemical analysis confirms that dioxin and dibenzofuran contaminants are entering the San Jacinto River. Chemical analysis documented the presence of numerous dioxin congeners in the source sediments. In addition, sediment samples collected within the surface waste ponds indicate that concentrations of hazardous substances are present at levels significantly greater than upstream and downstream background levels and in concentrations greater than the corresponding by Contract-Required Quantitation Levels.

2. Physical Location

The Site, as indicated in Attachment 1, is in Harris County in the State of Texas. The Site itself has no specific street address. The Site is comprised of an area of land with a set of two waste ponds with three surface impoundments built in the 1960s for disposal of pulp and paper mill wastes. The site is located on a 20-acre parcel on the western bank of the San Jacinto River, in Harris County, Texas, immediately north of the Interstate Highway 10 (I-10) bridge over the San Jacinto River. Prior to 1965, the two waste ponds were built by constructing berms within the estuarine marsh just north of what was then Texas State Highway 73 and is now I-10, west of the main river channel east of the City of Houston between two unincorporated areas known as Channelview and Highlands.

3. Site Characteristics

The Site consists of two waste ponds consisting of three surface impoundments containing hazardous substances partially submerged in the San Jacinto River as well as locations those hazardous substances have been deposited, placed, or otherwise come to be located. Aerial photographs as early as the 1970s indicate the Tract inundated by the San Jacinto River. The ponds at the Site are connected with a drain line to allow flow of excess water (including rain water) from Pond #1 on the western side, to Pond #2 on the eastern side. Both ponds were used as a waste disposal area and waste was pumped into the impoundments from the barge as a slurry (Attachment 2). The outer edges of the eastern pond collected the effluent from the western impoundment where it was transported back to the Champion paper mill in Pasadena, Texas, where is passed through subsequent settling ponds. There is evidence of a secondary impoundment in the eastern pond that may have been associated with the drain line between the two waste ponds.

The waste paper sludge was placed in the two ponds on the Tract. Waste pond 1 is located on the western portion of the Tract totaling 132,386 square feet. Waste pond 2 which consists of two surface impoundments are on the eastern portion of the Tract totaling 46,182 square feet and 188,641 square feet respectively. Currently, the Tract is inactive and approximately half of the Tract's surface area, including the abandoned waste disposal ponds, is now submerged below the adjacent San Jacinto River's water surface.

The primary hazardous substances documented at the Site are polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. Dioxin concentrations as high as 41,300 parts per trillion have been found in sediment samples collected from the Tract's disposal pond areas and from river sediments near the Tract. Sediments contaminated with high levels of dioxin have been found in the San Jacinto River both upstream and downstream from the Tract due to tidal influences.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans have been detected in sediment and surface water at the site. Dioxins and furans are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

5. NPL Status

The Site was proposed for listing on the National Priorities List ("NPL") on September 19, 2007 (72 FR53509), and was placed on the NPL effective March 19, 2008 (73 FR 14719).

6. Maps, pictures and other graphic representations

Attachment 1 Current Site Location
Attachment 2 Site Map with Waste Pits 1 and 2
Attachment 3 Site photos of waste entering San Jacinto River dated 03/01/2010
Attachment 4 ATSDR Fact Sheets on Dioxins/Furans
Attachment 5 Enforcement Addendum (Enforcement Confidential/FOIA Exempt)
Attachment 6 Historical Aerial photos of site
Attachment 7 1966 Datum Map with original impoundments line superimposed

B. Other Actions to Date

1. Previous Actions

On December 27, 1965, the Harris County Health Department ("HCHD") observed liquid waste being pumped out of a pond at the Tract directly into the San Jacinto River. On December 28, 1965, the HCHD sent a letter to MIMC and Champion ordering them to stop discharging "black liquor" from the waste ponds into the San Jacinto River. In addition, the HCHD demanded that the levees surrounding the wastes ponds be repaired.

A December 30, 1965 internal Champion memo confirmed that water seepage was occurring along the waste ponds' levees and two sections of the levee around the western waste pond.

In May 1966, the Texas Department of Health ("TDH") investigated Champion Paper's waste disposal practices. The TDH noted seepage on the western waste pond and needed improvements on the eastern waste ponds because it had never been properly completed even though waste was being stored near capacity within its confines. In addition, the TDH noted that storm events had the potential to cover the disposal area with water and wash out the levees.

On July 29, 1966, the Texas Water Pollution Control Board ("TWPCB") granted MIMC permission to release a combination of stabilized waste water and rain water from the waste ponds into the San Jacinto River. The TWPCB noted that the waste ponds would no longer be used for the storage of waste material.

The City of Houston conducted a toxicity study of the Houston Ship Channel including the San Jacinto River published in July 1995. Samples of sediment and fish and crab samples were collected in August 1993 and May 1994 for the study. Sediment samples collected northeast of the Tract indicated extremely high dioxin and furan levels. These dioxin and furan levels were the highest values recorded in the entire Houston Ship Channel. In addition, fish and crab samples collected northeast of the Tract and 1 mile downstream from the Tract also indicated extremely high levels of dioxins and dibenzofurans.

In January 2004, the Texas Commission on Environmental Quality ("TCEQ") published a study of the Total Maximum Daily Loads ("TMDLs") for Dioxins in the Houston Ship Channel. Samples of sediment and fish tissue were collected in summer 2002, fall 2002, and spring 2003. The data collected indicated the continued presence of dioxin contamination in the San Jacinto River surrounding the Tract. In addition, the fish and shellfish tissue samples collected indicated that the health-based standard was exceeded in 97% of fish samples and in 95% of the crab samples. Additional samples in the San Jacinto River surrounding the Tract were collected in spring 2004 and confirmed the high dioxin concentrations.

On April 14, 2005, the Texas Parks & Wildlife Department ("TPWD") referred the area consisting of the Tract to the U.S. EPA for evaluation under the Hazardous Ranking System as a potential Superfund site. The TPWD submitted a 1982 topographic map and aerial photographs of the Tract indicating much of the land area has been submerged due to subsidence. In addition, the TPWD cited the Houston Ship Channel Toxicity Study and the TMDLs for Dioxins in the San Jacinto River as indication that there was a risk that needed to be addressed at the Tract due to the unusually high dioxin readings collected northeast of the Tract as well as downstream from the Tract.

2. Current Actions

On July 17, 2009, EPA sent a Special Notice Letter to the Respondents offering them an opportunity to negotiate and enter into an Administrative Order on Consent ("AOC") covering the performance of the Remedial Investigation and Feasibility Study (RI/FS) of the Site. However, EPA never received a Good Faith Offer to perform the RI/FS for the Site.

On November 20, 2009, EPA issued a Unilateral Administrative Order (UAO) to International Paper Company, Inc. and McGinnes Industrial Maintenance Corporation to conduct a RI/FS to study the nature and extent of contamination at the site.

C. <u>State and Local Authorities' Roles</u>

1. State and Local Actions to Date

In August 2009, the TCEQ conducted environmental sampling to evaluate releases from the pits into surface water and sediments at the site. A final report will be available for review in the 3rd fiscal quarter of 2010.

2. Potential for State/local Response

The TCEQ, Harris County, along with other federal stakeholders (i.e. US Fish and Wildlife Service and the National Oceanic and Atmospheric Administration) will provide technical assistance to the EPA during oversight of this removal action.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (iii), (iv), and (v) directly apply to the conditions at the site. Any one of these factors may be sufficient to justify a removal action.

1. Exposure to Human Populations, Animals or the Food Chain, NCP Section 300.415.(b)(2)(i)

There is potential for exposure of human populations and animals to dibenzo-p-dioxins and polychlorinated dibenzofurans, which are hazardous substances as defined in CERCLA Section 101(14), 42 U.S.C. 9601(14), and further defined at 40 CFR § 302.4. A release of these contaminants from both waste ponds has been identified through site assessment activities conducted by EPA and TCEQ in 2006, and there is a threat of further release. Site assessment activities included surface water and sediment sampling for the presence of dioxins and furans. People and animals coming on to the site could be exposed to these contaminants through ingestion, skin contact and inhalation pathways. In addition, during a recent site visit conducted on March 1, 2010, by RPMs Leos and Tzhone, releases of hazardous substances were observed entering the San Jacinto River from both Waste ponds #1 and #2.

Routes of exposure include, but are not limited to: human direct dermal contact with contaminated sediment or water; human ingestion of contaminated sediment or water; human inhalation of contaminated sediment or water; human direct dermal contact with contaminated ecological receptors; human ingestion of contaminated ecological receptors; and ecological bioaccumulation of contaminants at every level of the food web.

Both human and ecological health is threatened by releases of hazardous substances from the Tract. Humans trespass on and around the site to capture ecological receptors for sport and subsistence. Ecological receptors include, but are not limited to: fish, birds, mammals, amphibians, reptiles, macro-invertebrates, micro-invertebrates, and plants. Ecological health is also threatened by bioaccumulation of hazardous substances released from the north tract/source area at every level of the food chain.

Dioxins from natural and anthropogenic (man-made) sources have been widely distributed throughout the environment. Almost every living creature has been exposed to

dioxins. Studies have shown that exposure to dioxins at high enough doses may cause a number of adverse health effects.

The most common health effect in people exposed to large amounts of dioxins, in particular 2,3,7,8- Tetrachlorodibenzo-p-dioxin (2,3,7,8,-TCDD), is chloracne. Chloracne cases have typically been the result of accidents or significant contamination events. Chloracne is a severe skin disease with acne-like lesions that occur mainly on the face and upper body. Other skin effects noted in people exposed to high doses of 2,3,7,8-TCDD include skin rashes, discoloration, and excessive body hair. Changes in blood and urine that may indicate liver damage also are seen in people. Exposure to high concentrations of CDDs may induce long-term alterations in glucose metabolism and subtle changes in hormone levels.

In certain animal species, 2,3,7,8-TCDD is especially harmful and can cause death after a single exposure. Exposure to lower levels can cause a variety of effects in animals, such as weight loss, liver damage, and disruption of the endocrine system. In many species of animals, 2,3,7,8-TCDD weakens the immune system and causes a decrease in the system's ability to fight bacteria and viruses. In other animal studies, exposure to 2,3,7,8-TCDD has caused reproductive damage and birth defects. Some animal species exposed to TCDDs during pregnancy had miscarriages and the offspring of animals exposed to 2,3,7,8-TCDD during pregnancy often had severe birth defects including skeletal deformities, kidney defects, and weakened immune responses. Several studies suggest that exposure to 2,3,7,8-TCDD increases the risk of several types of cancer in people. Animal studies have also shown an increased risk of cancer from exposure to 2,3,7,8-TCDD.

The U.S. Department of Health and Human Services has determined that 2,3,7,8-TCDD may reasonably be anticipated to cause cancer and the World Health Organization has determined that 2,3,7,8-TCDD is a human carcinogen. EPA has classified hexachlorodibenzo-p-dioxin as a probable human carcinogen (B2).

2. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release, NCP Section 300.415(b)(2)(iii)

Currently, the site consists of two waste ponds (Attachment 2) containing three surface impoundments. Waste pond #1 containing one of the surface impoundments is currently being eroded by the San Jacinto River and the contents of the ponds are being released into the waterway. Sampling of waste pond #1 confirms the presence of dibenzo-p-dioxins and polychlorinated dibenzofurans with concentrations ranging from 513 ng/kg to 23,300 ng/kg (WHO 2005). Waste pond #2 which contains two of the three surface impoundments and is located on the eastern site of the property is partly submerged under water and is releasing hazardous substances into the adjacent San Jacinto River. Sediment sampling in waste pond #2 has confirmed the presence of dibenzo-p-dioxins and polychlorinated dibenzofurans with concentrations ranging from 83 ng/kg to 34,000 ng/kg (WHO 2005).

3. Contaminants in Soils, NCP Section 300.415.(b)(2)(iv)

Dibenzo-p-dioxins and polychlorinated dibenzofurans are hazardous substances as defined in CERCLA Section 101(14), 42 U.S.C. § 9601(14), and further defined in 40 CFR § 302.4. Sample results indicated that dibenzo-p-dioxins and polychlorinated dibenzofurans contamination have exceeded 1,000 ng/kg in sediment samples collected from the impoundments as high as 34,000 ng/kg in waste pond #2 and as high as 23,300 ng/kg in waste pond #1.

4. Weather Conditions That May Cause the Release or Migration of Hazardous Substances, NCP Section 300.415(b)(2)(v)

The area receives an average of 50 inches of rain annually. The contaminants are subject to migration by entrainment, windblown deposition and surface runoff. The impoundments in waste ponds 1 and 2 may be affected by tides, winds, waves, and currents resulting from extreme weather conditions such as strong storm winds, flooding, tornadoes, and hurricanes which may cause a potential release or migration of dioxin and furan contaminated materials

B. Threats to the Environment

The levels of dibenzo-p-dioxins and polychlorinated dibenzofurans in sediment and surface water at this site in both waste ponds present a potential health problem to animal life that comes into contact with contaminated sediment and to freshwater aquatic life that receives runoff from this site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

According to sediment and surface water samples taken by the TCEQ, EPA, and the University of Houston from 2005 through 2009 at the site, there are currently uncontrolled releases of dibenzo-p-dioxins and polychlorinated dibenzofurans into the San Jacinto River from Waste ponds #1 and #2. In addition to sampling data confirming releases from Waste ponds #1 and #2, a recent site inspection conducted in March 1, 2010, by Remedial Project Managers Leos and Tzhone has shown that there is visual evidence of grayish waste releasing into the San Jacinto River located in the Northwest corner of waste pond #1 (See Attachment 3). In addition, Waste pond #2 with its contaminated sediment, was observed to be under four feet of water and is continually releasing hazardous substances into the San Jacinto River.

The proposed action for this time critical removal involves the immediate design and construction of a physical protective barrier surrounding waste ponds 1 and 2 that address the release or threat of release of dibenzo-p-dioxins and polychlorinated dibenzofurans into the San Jacinto River. In addition to a physical protective barrier to keep the waste secure, there is currently unrestricted public access at the site. Public access restrictions must be put in place immediately following the approval of this action memorandum. The public access restrictions should involve placement of security fences and signs to prevent trespassing onto the property. The security fencing will prevent access of unauthorized persons into the entire area containing the waste impoundments.

Currently, there is not sufficient data available to fully characterize the nature and extent of contamination from waste ponds 1 and 2 (Attachment 2). Additional sediment and surface water samples need to be taken immediately for the design and construction of the protective barrier. A sampling plan will be prepared and implemented immediately following the approval of this action memorandum from which environmental sampling will occur along the perimeter of the referenced 1966 dike alignment shown in Attachment 7. Any concentrations greater than or equal to 330 ng / kg of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) organic carbon normalized (or 4.5 ng / kg TCDD non-organic carbon normalized) in the sediment will be considered part of the source area of contamination within the original 1966 berm placement as shown in Attachment 7 that must be addressed with the protective barrier. Any concentrations of less than 330 ng / kg of TCDD organic carbon normalized (or 4.5 ng / kg TCDD non-organic carbon normalized) found in the sediment will be addressed in future non-time critical or remedial actions at the site.

The barrier design and construction must be structurally sufficient to withstand forces sustained by the river including any future erosion and be structurally sound for a number of years until a final remedy is designed and implemented. Also, the Houston area is visited by seasonal severe weather events (i.e. strong force winds or flooding) and the physical protective barrier must be structurally secure to withstand any potential future extreme weather events (i.e. Hurricane Ike of 2008).

All requirements under the OSHA of 1970, 29 U.S.C. § 651 et seq., and under the laws of a State with an approved equivalent worker safety program, as well as other applicable safety and health requirements, will be followed. Federal OSHA requirements include, among other things, Hazardous Materials Operation, 20 CFR § 1910, as amended by 54 Fed. Reg. 9317 (March 1989), all OSHA General Industry (29 CFR § 1910) and Construction (29 CFR § 1926) standards wherever they are relevant, as well as OSHA record keeping and reporting regulations, and the EPA regulations set forth in 40 CFR § 300 relating to the conduct of work at Superfund sites.

2. Contribution to Remedial Performance

Because this action constitutes source control, these actions are consistent with any long term remediation strategies that may be developed for the site.

3. Description of Alternative Technologies

Alternative technologies will be evaluated at a future date after the site stabilization and source control have been achieved.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

This removal action will be conducted to abate the actual or potential release of a hazardous substance, pollutant, or contaminant to the environment, in accordance with CERCLA, 42 U.S.C. § 9601 et seq., and in a manner consistent with the National Contingency Plan, 40 CFR § 300, as required in 33 U.S.C. § 1321(c)(3) and 42 U.S.C. § 9604 (a)(1). As stated in 40 CFR § 300.415(j), fund-financed removal actions under CERCLA Section 104 and removal actions under CERCLA Section 106 shall, to the extent practicable considering the exigencies of the situation, attain the ARARs under Federal environmental law. ARARs are set forth in the TSCA codified in 40 CFR § 700 for the disposal, cleanup and verification sampling of PCBs spills.

The RCRA waste analysis requirements found in 40 CFR § 261.20 and 261.30, RCRA's manifesting requirements found in 40 CFR § 262.20, and RCRA packaging and labeling requirements found in 40 CFR § 262.30 are ARARs for this removal action. Because onsite storage of hazardous wastes will not exceed ninety days, specific storage requirements found in 40 CFR § 265 are not ARARs. *See* 40 CFR § 262.34.

5. Project Schedule

After the Action Memorandum is signed, it is anticipated that the additional sampling for design along with the construction will commence within 60 days. Onsite construction will take approximately 90 to 120 days to complete. Total project length will be approximately 180 days.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

The proposed actions for the San Jacinto River Waste Pits site should be taken immediately. Should these actions be delayed, the potential threats to human health and the environment will increase. A substantial amount of the dibenzo-p-dioxins and polychlorinated dibenzofurans waste will continue to release and spread into the San Jacinto River and unrestricted access to the area will continue to threaten nearby human populations.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

See attached confidential Enforcement Attachment (*See* Attachment 5).

IX. RECOMMENDATION

This decision document represents the selected removal action for the San Jacinto River Waste Pits site near Houston, Harris County, Texas, is developed in accordance with CERCLA, 42 U.S.C.§ 9601 et seq., and consistent with the NCP, 40 CFR § 300. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. No funding will come from the Regional removal allowance for this proposed action.

Approved: _____ Date: 2 April 2010
Samuel Coleman, P.E., Director
Superfund Division

Attachments

Reference List

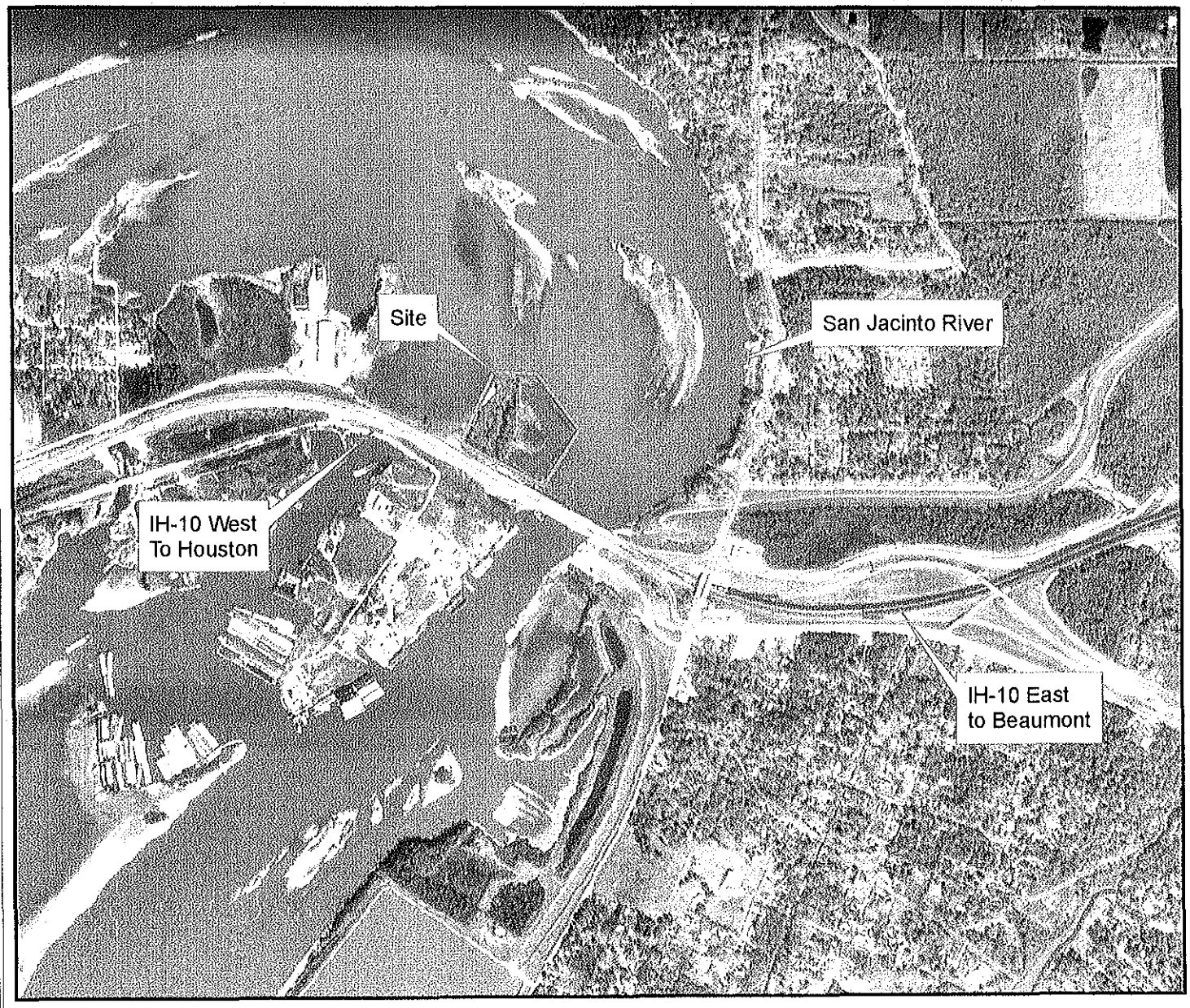
U.S. EPA. 2009. *Unilateral Administrative Order for Remedial Investigation / Feasibility Study.* U.S. EPA Region 6. CERCLA Docket No. 06-03-10

TCEQ and U.S. EPA. 2006. *Screening Site Assessment Report San Jacinto River Waste Pits, Channelview, Harris County, Texas.* TXN000606611. Texas Commission on Environmental Quality and U.S. Environmental Protection Agency.

University of Houston and Parsons. 2006. *Total maximum daily loads for dioxins in the Houston Ship Channel.* Contract No. 582-6-70860, Work Order No. 582-6-70860-02. Quarterly report No. 3., Prepared in cooperation with the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency. University of Houston and Parsons Water & Infrastructure. http://www.tceq.state.tx.us/assets/public/implementation/water/tmdl/26hscdioxin/26-all-data-compiled-q3-fy06.pdf.

Weston. 2006. *Draft Field Activities Report for Sediment Sampling.* San Jacinto River Bridge Dolphin Project IH-10 at the San Jacinto River. Prepared for the Texas Department of Transportation, Environmental Affairs Division, Austin, TX. Weston Soultions, Inc., Houston, Texas.

Attachment 1
Current Site Location



TCEQ

SOURCE - The base data used are the Highlands Digital Orthoquarter Quadrangles (DOQQs), which are digital versions of aerial photogrpahs. This DOQQ was produced by the TCEQ using USGS guidelines.
NAD 83 UTM Zone 15.

N

0 0.1 0.2 0.4 0.6 0.8 Miles

Attachment 2

Site Map with Waste Pits 1 and 2

San Jacinto River Waste Pits

1966 Original Perimeter of Impoundments

N

0 75 150 225 300
Feet

Sources:
Aerial Photo: Digital Globe, 2007.
Impoundment Boundaries: Created by EPA Region 6 using 1966 aerial photo from USGS.

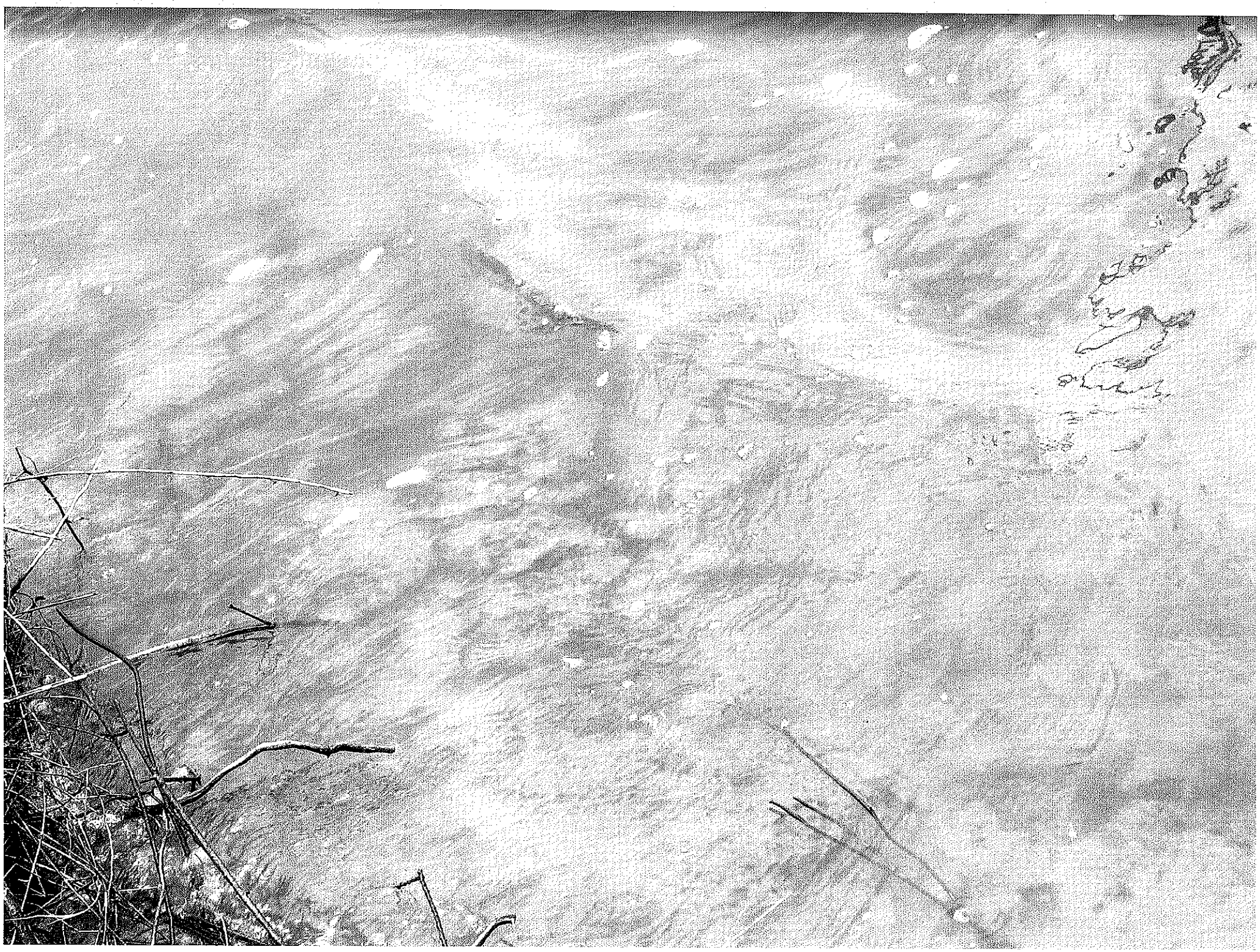
EPA makes no claims as to the accuracy of the data or its suitability for any particular use.

Map created: March 17, 2010

EPA Region 6
GIS Support Team
Dallas, Texas
20100317M1.02

Attachment 3

Site photos of waste entering San Jacinto River dated 03/01/2010



Attachment 4

ATSDR Fact Sheets on Dioxins/Furans

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

CHLORINATED DIBENZO-p-DIOXINS (CDDs)

Division of Toxicology and Environmental Medicine ToxFAQs™ February 1999

This fact sheet answers the most frequently asked health questions (FAQs) about dibenzo-p-dioxins. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because these substances may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to chlorinated dibenzo-p-dioxins (CDDs) (75 chemicals) occurs mainly from eating food that contains the chemicals. One chemical in this group, 2,3,7,8-tetrachlorodibenzo-p-dioxin or 2,3,7,8-TCDD, has been shown to be very toxic in animal studies. It causes effects on the skin and may cause cancer in people. This chemical has been found in at least 91 of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What are CDDs?

CDDs are a family of 75 chemically related compounds commonly known as chlorinated dioxins. One of these compounds is called 2,3,7,8-TCDD. It is one of the most toxic of the CDDs and is the one most studied.

In the pure form, CDDs are crystals or colorless solids. CDDs enter the environment as mixtures containing a number of individual components. 2,3,7,8-TCDD is odorless and the odors of the other CDDs are not known.

CDDs are not intentionally manufactured by industry except for research purposes. They (mainly 2,3,7,8-TCDD) may be formed during the chlorine bleaching process at pulp and paper mills. CDDs are also formed during chlorination by waste and drinking water treatment plants. They can occur as contaminants in the manufacture of certain organic chemicals. CDDs are released into the air in emissions from municipal solid waste and industrial incinerators.

What happens to CDDs when they enter the environment?

- When released into the air, some CDDs may be transported long distances, even around the globe.
- When released in waste waters, some CDDs are broken down by sunlight, some evaporate to air, but most attach to soil and settle to the bottom sediment in water.
- CDD concentrations may build up in the food chain, resulting in measurable levels in animals.

How might I be exposed to CDDs?

- Eating food, primarily meat, dairy products, and fish, makes up more than 90% of the intake of CDDs for the general population.
- Breathing low levels in air and drinking low levels in water.
- Skin contact with certain pesticides and herbicides.
- Living near an uncontrolled hazardous waste site containing CDDs or incinerators releasing CDDs.
- Working in industries involved in producing certain pesticides containing CDDs as impurities, working at paper and pulp mills, or operating incinerators.

How can CDDs affect my health?

The most noted health effect in people exposed to large amounts of 2,3,7,8-TCDD is chloracne. Chloracne is a severe skin disease with acne-like lesions that occur mainly on the face and upper body. Other skin effects noted in people exposed to high doses of 2,3,7,8-TCDD include skin rashes, discoloration, and excessive body hair. Changes in blood and urine that may indicate liver damage also are seen in people. Exposure to high concentrations of CDDs may induce longterm alterations in glucose metabolism and subtle changes in hormonal levels.

In certain animal species, 2,3,7,8-TCDD is especially harmful and can cause death after a single exposure. Exposure to lower levels can cause a variety of effects in

animals, such as weight loss, liver damage, and disruption of the endocrine system. In many species of animals, 2,3,7,8-TCDD weakens the immune system and causes a decrease in the system's ability to fight bacteria and viruses. In other animal studies, exposure to 2,3,7,8-TCDD has caused reproductive damage and birth defects. Some animal species exposed to CDDs during pregnancy had miscarriages and the offspring of animals exposed to 2,3,7,8-TCDD during pregnancy often had severe birth defects including skeletal deformities, kidney defects, and weakened immune responses.

How likely are CDDs to cause cancer?

Several studies suggest that exposure to 2,3,7,8-TCDD increases the risk of several types of cancer in people. Animal studies have also shown an increased risk of cancer from exposure to 2,3,7,8-TCDD.
The World Health Organization (WHO) has determined that 2,3,7,8-TCDD is a human carcinogen.
The Department of Health and Human Services (DHHS) has determined that 2,3,7,8-TCDD may reasonably be anticipated to cause cancer.

How can CDDs affect children?

Very few studies have looked at the effects of CDDs on children. Chloracne has been seen in children exposed to high levels of CDDs. We don't know if CDDs affect the ability of people to have children or if it causes birth defects, but given the effects observed in animal studies, this cannot be ruled out.

How can families reduce the risk of exposure to CDDs?

- ❑ Children should avoid playing in soils near uncontrolled hazardous waste sites.
- ❑ Discourage children from eating dirt or putting toys or other objects in their mouths.
- ❑ Everyone should wash hands frequently if playing or working near uncontrolled hazardous waste sites.
- ❑ For new mothers and young children, restrict eating foods from the proximity of uncontrolled sites with known CDDs.
- ❑ Children and adults should eat a balanced diet preferably containing low to moderate amounts of animal fats including meat and dairy products, and fish that contain lower amounts of CDDs and eat larger amounts of fruits, vegetables, and grains.

Is there a medical test to determine whether I've been exposed to CDDs?

Tests are available to measure CDD levels in body fat, blood, and breast milk, but these tests are not routinely available. Most people have low levels of CDDs in their body fat and blood, and levels considerably above these levels indicate past exposure to above-normal levels of 2,3,7,8-TCDD. Although CDDs stay in body fat for a long time, tests cannot be used to determine when exposure occurred.

Has the federal government made recommendations to protect human health?

The EPA has set a limit of 0.00003 micrograms of 2,3,7,8-TCDD per liter of drinking water (0.00003 μg/L). Discharges, spills, or accidental releases of 1 pound or more of 2,3,7,8-TCDD must be reported to EPA. The Food and Drug Administration (FDA) recommends against eating fish and shellfish with levels of 2,3,7,8-TCDD greater than 50 parts per trillion (50 ppt).

References

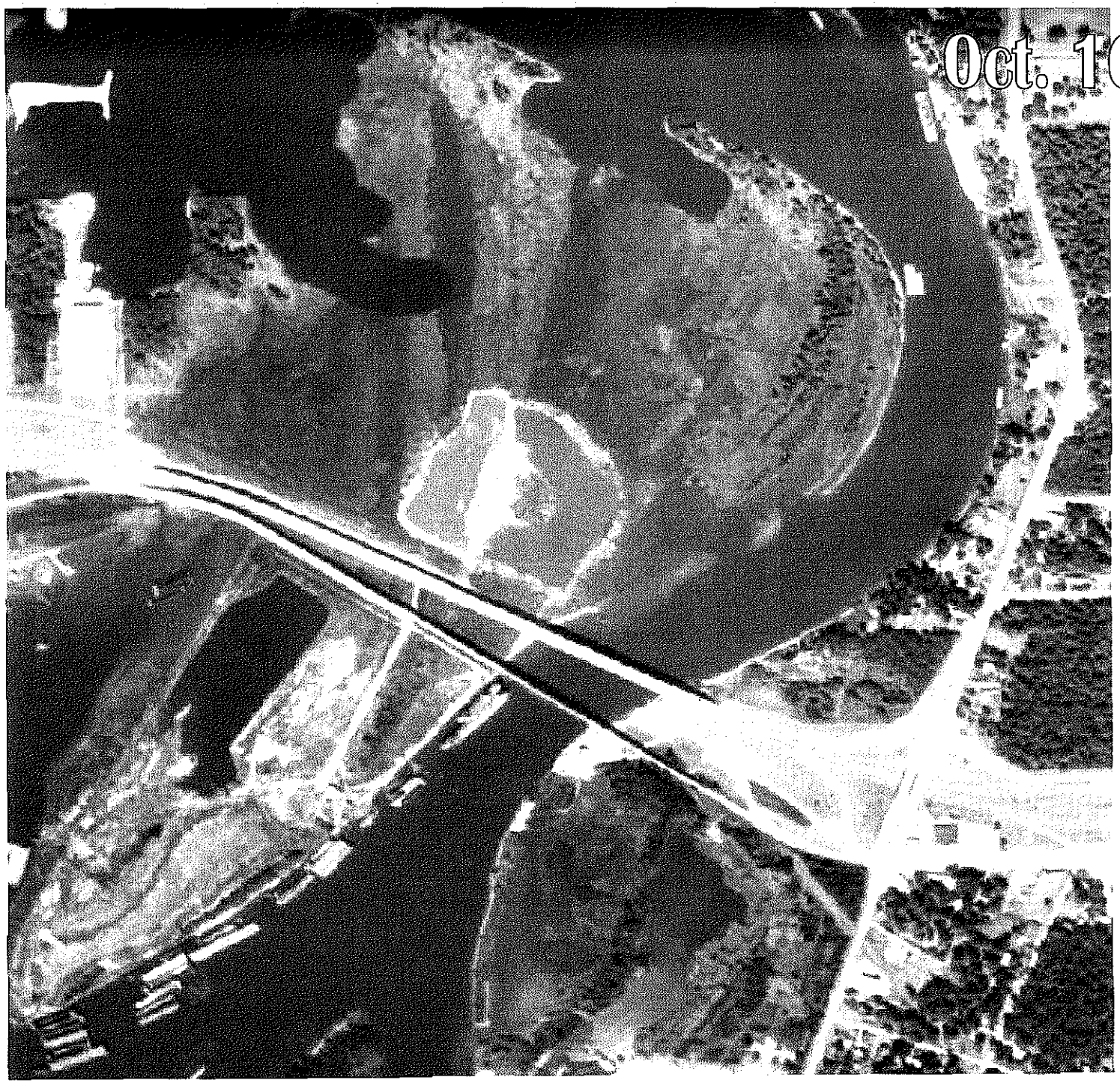
Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological Profile for Chlorinated Dibenzo-p-Dioxins. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-62, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Attachment 5

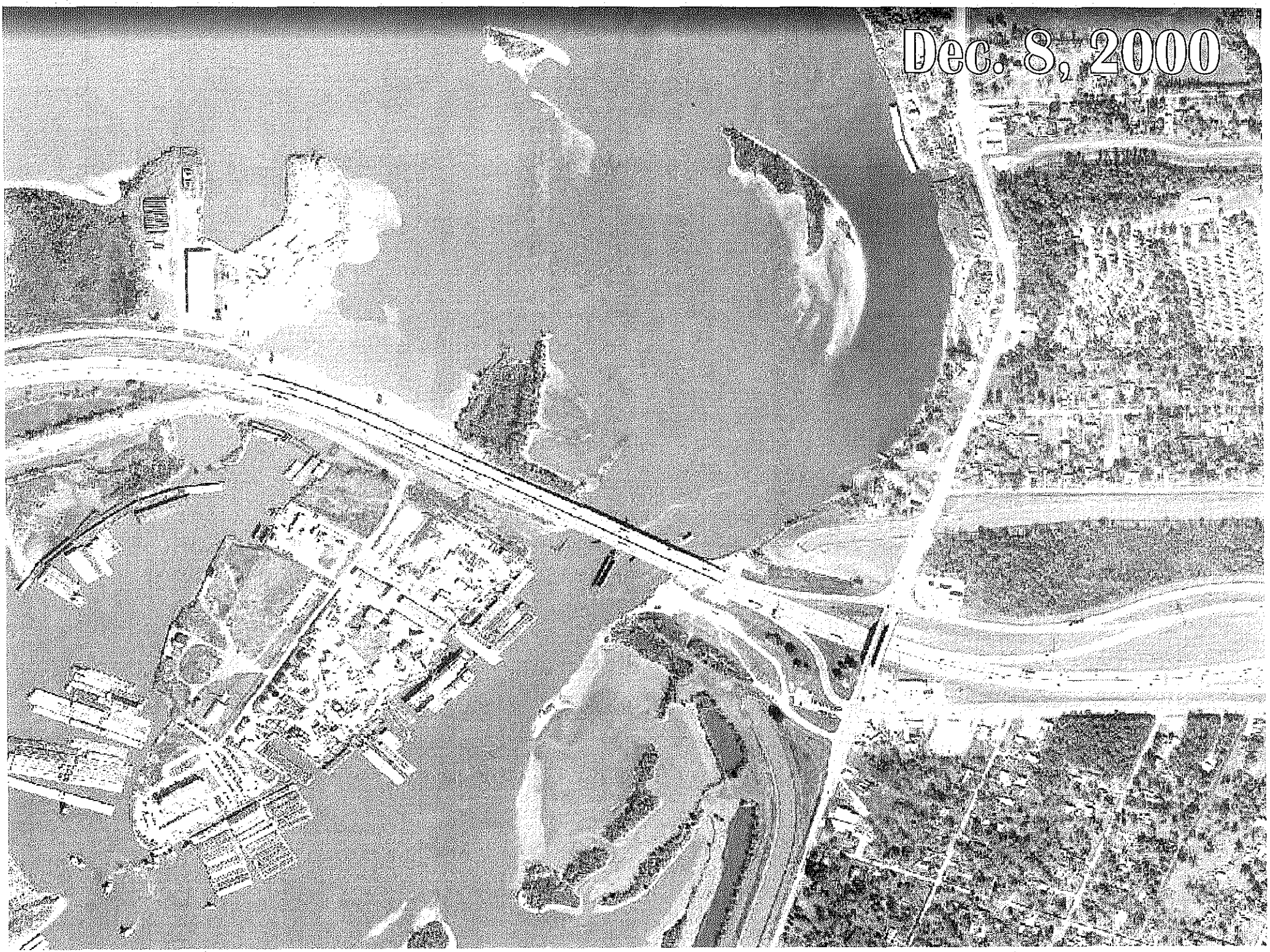
Enforcement Addendum (Enforcement Confidential/FOIA Exempt)

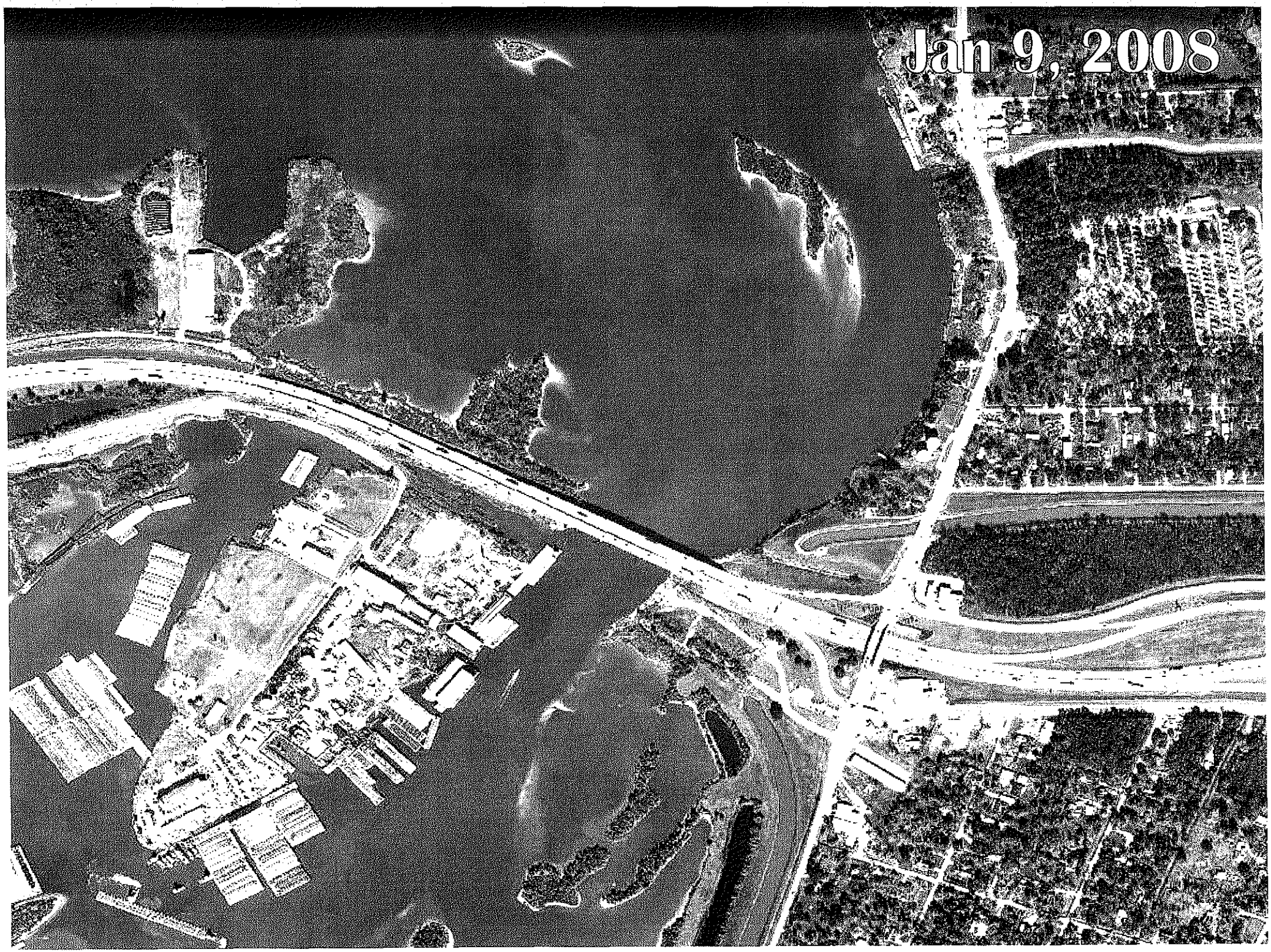
Attachment 6
Historical Aerial photos of site


Oct. 16, 1966

1973

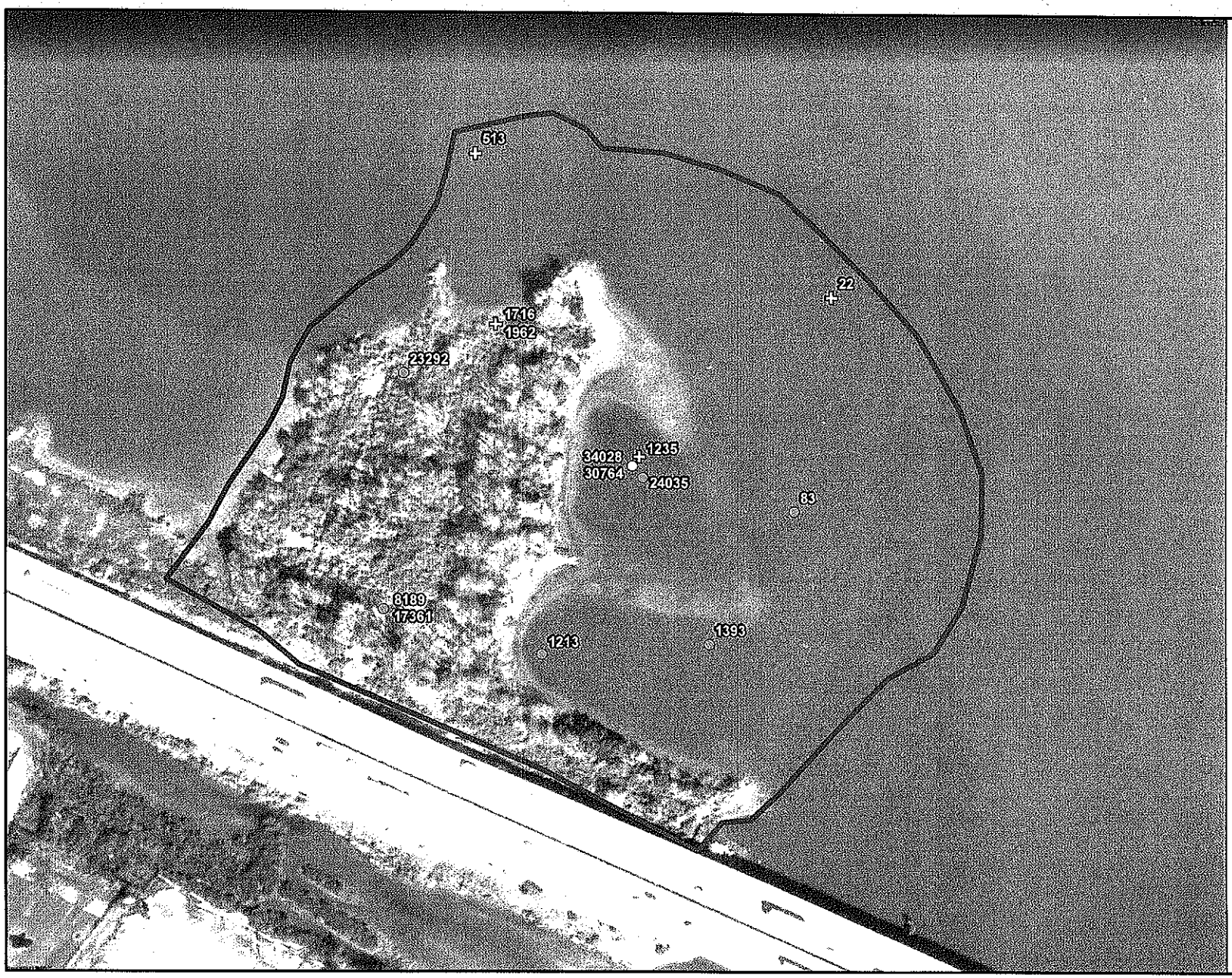
1989


Dec. 8, 2000


Jan 9, 2008

Attachment 7

1966 Datum Map with original impoundments line superimposed



San Jacinto River Waste Pits

Surface Sediment Samples*

- URS (2010)
- TCEQ and USEPA (2006)
- U of H and Parsons (2006)
- Original Perimeter of Impoundments

*2,3,7,8-TCDD Equivalents (TEQs) in Surface Sediments (pg/g dw, ND=1/2DL, WHO 05)

N

0 75 150 225 300
Feet

Sources:
Aerial Photo: Digital Globe, 2007.
Sample Data: Database compiled by Integral Consulting, January 2010. Sample sources include URS, TCEQ, US EPA, University of Houston, and Parsons.
Impoundment Boundaries: 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 17, 2010

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20100317MLJ01