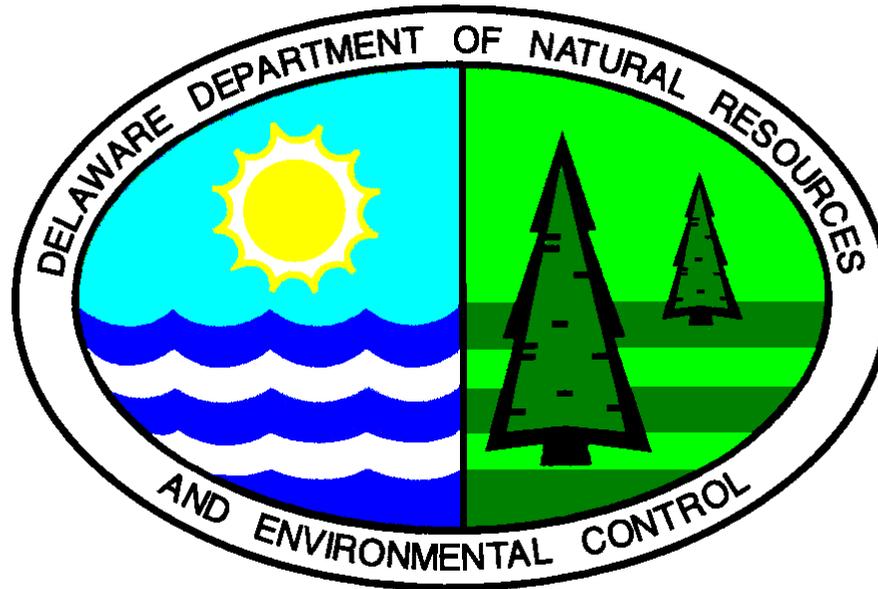


Final Plan of Remedial Action

Peninsula Park LLC
Operating Unit -1 (OU-1)
East Seventh Street Peninsula
Wilmington, Delaware
DNREC Project No. DE-1147



February 2000

Department of Natural Resources and Environmental Control
Division of Air and Waste Management

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Assessment investigation conducted in October 1998 (“Northside BPA II”) by the Department of Natural Resources and Environmental Control’s Site Investigation and Restoration Branch (“Department” or “DNREC-SIRB”) personnel. The report was written under the direction of the Hazardous Substance Cleanup Act - Voluntary Cleanup Program (“VCP”). The FFS was conducted in accordance with the Delaware Regulations Governing Hazardous Substance Cleanup (the “Regulations”). The Northside BPA II included the sampling of surface soil, subsurface soil, surface water, sediments, and groundwater.

2 PURPOSE

This Final Plan of Remedial Action (“Final Plan”) is based on the Northside BPA II completed by the Department, and the FFS completed by EA on behalf of Peninsula Park, and presents to the public the DNREC-SIRB’s final selection of any remedial activities to occur at the Bell Atlantic Switching Station (lot #2), EDIS property (lot #3) and Tri-State property (lot #4) comprising an estimated 12 acres on the East Seventh Street Peninsula in Wilmington, Delaware. This Final Plan is issued under the provisions of the Delaware Hazardous Substance Cleanup Act, Del. C., Chapter 91, (“HSCA”) and the Regulations Governing Hazardous Substance Cleanup (“Regulations”).

The Department provided a public hearing on Thursday May 13, 1999, and an opportunity to comment on the Proposed Plan of Remedial Action (“Proposed Plan”) in accordance with the HSCA and Section 12 of the Regulations. At the conclusion of the public hearing process, the Department issues this Final Plan, which designates the selected procedures and stipulations concerning current and future activities. The Proposed Plan, the comments received from the public, the Department’s responses to the comments, and all of the site documents form the basis for this Final Plan.

Section 3 provides a site description for the Peninsula Park site. Section 4 provides a description of the investigation results. Section 5 presents the Proposed and Final Plans of Remedial Action. Section 6 discusses public participation requirements, and Section 7 presents the Director’s declaration.

3 SITE DESCRIPTION AND HISTORY

Peninsula Park L.L.C. is in the process of developing approximately 12 of the 15 acres of vacant land. This Final Plan deals with only the soil and subsoil portion of the 12-acre project area which includes the Bell Atlantic facility (~6.5 acres), EDIS Lot #3 (~3 acres) and the Tri-State Lot #4 (~2.22 acres).

This Final Plan does not involve an evaluation of the soils in the 3-acre wooded wetland area (Lot #1, now or formerly owned by First State Enterprises) on the west side of the Bell Atlantic facility. Nor does this Final Plan address the groundwater, surface water, or sediment media for the entire 15 acres, (Lots 1, 2, 3 and 4). These media shall be addressed as a second operable unit. See figure 3 for site boundaries that this Final Plan addresses.

targeted for economic revitalization by the City of Wilmington and the Riverfront Development Corporation (RDC). The portion of land being considered for development for Bell Atlantic is roughly bounded by Industrial Street to the south, Plant Street (Paper Street) to the north, wetlands to the west, and the remaining 3 acres of Peninsula Park property to the east. The proposed development includes one building, of 10,750 square feet, four parking lots that will accommodate 200 vehicles, and associated utilities. EDIS Lot #3 and Tri-State Lot #4 are included in this Final Plan but are not subject to immediate development. Lots 2, 3, and 4 are considered Operating Unit I.

A Voluntary Cleanup Program Agreement (“VCP”) between Peninsula Park, L.L.C. and the DNREC-SIRB was signed on March 10, 1999.

4 INVESTIGATION RESULTS

The DNREC-SIRB conducted the Northside BPA II in accordance with the Regulations and the Northside BPA II Work Plan in October 1998. The purpose of this investigation was to determine the existence or non-existence of contamination over the 43-acre northern section of the East Seventh Street Peninsula, which included the Peninsula Park property (formerly known as the Julian property).

The Northside BPA II investigated all properties bound by the Brandywine Creek, Industrial Street, East Seventh Street, and the Amtrak Rail Line. Seven test pits from the Northside BPA II were located on the Peninsula Park property, and one on Industrial Road adjacent to the Peninsula Park property. Sixteen samples plus three QA/QC samples were collected and field screened. Four soil samples and one groundwater sample were sent for selected constituent analysis.

The scope of work for the Peninsula Park portion of the investigation included eight test pit locations for shallow and deep soil samples, one for surface water, three for sediment, and one for groundwater (Figure 2). The samples were collected in accordance with procedures described in the approved Work Plan and were screened by use of the DNREC-SIRB Mobile Laboratory (DML). The DML screened solid matrix samples for metals, carcinogenic polynuclear aromatic hydrocarbons (PAHs), pesticides, and polychlorinated biphenyls (PCBs). Four soil samples, based on the screening by the DML were analyzed by a Delaware Certified HSCA laboratory, using Standard Operating Procedures for Chemical Analytical Programs, SOPCAP (DNREC, 1997) procedures and methods for selected inorganic and organic analysis. One groundwater sample was sent directly to the certified HSCA laboratory and analyzed according to SOPCAP.

As a result of the completion of the Northside BPA II, contaminants of concern requiring remedial actions were identified in the Peninsula Park soils. These include metals, PAHs, and Pesticides/PCBs. All four samples had Arsenic and Lead contamination above the HSCA Uniform Risk Based Standards (“URS”) for Restricted Critical Water Resource Areas. Benzo(a)pyrene was detected in one sample at a concentration equal to the HSCA URS benchmark of 800 ppb (Tables 1-5).

The surface water sample was collected from a wetland on the property. The sediment samples were collected from the wetland onsite and the Brandywine Creek. These samples were not sent for confirmatory analysis due to relatively low screening levels observed utilizing the DML.

The Peninsula Park property is extensively filled. Test pit logs show that the fill ranges from 8 feet to an excess of 13 feet in thickness. The backhoe was not able to extend further than 13 feet below ground (BG) level. The depth of the fill increases toward the Brandywine Creek. Perched water was encountered in TP-19 and TP-21 at 10 feet – 12 feet BG. Municipal garbage was seen in TP-19 at 12 feet and in TP-26 at 2 feet. The log from monitor well (MW)-5 shows that fill is present down to 17 feet – 18 feet BG. Perched water was detected in the well at 11.5 feet BG. Municipal garbage may be present at 14 feet BG. Noticeable petroleum odors were detected in TP-21, TP-23, TP-24 and TP-26.

According to 8.4(1) of the Regulations, remedial action objectives must be established during a remedial investigation. For the Peninsula Park property, remedial action objectives were developed based on the findings identified during the Brownfield Preliminary Assessment II. These findings are:

- ❖ The site is currently vacant open land with approximately 3 acres of wooded wetland.
- ❖ The proposed future use of the site is light industrial.
- ❖ Surrounding land uses are vacant, commercial, and light industry.
- ❖ The site is within 2,600 feet southeast of a residential population. The nearest workers are located to the north and south of the property between 200 and 600 feet. The workers are involved in commercial and light industrial jobs including auto repair, bridge fabricating, warehousing and clean fill operations.
- ❖ Inorganics such as Arsenic and Lead, and organics such as PAHs and PCBs have locally impacted soil at the site. Most notable PAH was at sample location TP-23S which had Benzo(a)pyrene equal to the HSCA URS of 800 ppb.
- ❖ Screening data for sediments from the site along the Brandywine Creek indicate Arsenic and Lead as well as PAH and pesticide contamination.
- ❖ Analytical data for groundwater at the site indicates there is inorganic (Arsenic, Iron, Manganese, and Thallium) contamination. Data, though inconsistent between QA/QC samples, indicates the presence of petroleum in the volatile analytical runs.

The planned future site use in the area of investigation is light industrial. The property will become a switching station for Bell Atlantic, warehousing for EDIS, and warehousing and office space for Tri-State. This area of construction will be considered Operating Unit I. OU-I will deal with the soil media across 12 acres (the 3-acre wooded wetland is not included) and the sediments in the drainage easements.

The Qualitative Remedial Action Objectives for Operating Unit I on the site are as follows

Based on the above Qualitative Remedial Action Objectives, the following Quantitative Remedial Action Objectives were developed using the Delaware Uniform Risk Based Standards for Restricted Use in a Critical Water Resource Area:

- ❖ Prevent human and ecological receptor contact with soil that has an Arsenic concentration greater than 3.0 milligrams/kilogram (mg/Kg),
- ❖ Prevent human and ecological receptor contact with soil that has a Lead concentration greater than 1,000 mg/Kg,
- ❖ Prevent human and ecological receptor contact with soil that has a Benzo(a)pyrene concentration greater than 0.8 mg/Kg,
- ❖ Prevent human and ecological receptor contact with soil that has a total PCB concentration greater than 1.0 mg/Kg,
- ❖ Prevent human and ecological receptor contact with C18-C36 total petroleum hydrocarbons in excess of 5,000 mg/kg.

To accomplish the remedial action objectives, three remedial alternatives were identified.

Alternative 1 No action. This alternative would not have required any measures be taken to remedy the contamination present at the site.

Alternative 2 Containment of soil material. This alternative involved containment of contaminated soils above the DNREC-SIRB URS levels for **Restricted Critical Water Resource Areas** by placing the soils under building footprints, placement of a minimum of one foot of clean fill – six inches of crusher run and four inches of asphalt, capping in parking lots or using a geotextile fabric approved by the DNREC-SIRB between the contaminated soil, and a minimum of two feet of clean fill on top in open space areas. In addition, the property owner will place a restriction on the deed to the property limiting its use to commercial/industrial purposes only. A statement will be included in the deed restriction requiring prior DNREC approval for any excavation activities following the remediation. An operation and maintenance plan shall be developed by the consultant and approved by the DNREC for this site following the remediation of the property.

Alternative 3 Complete removal of material. This alternative would have involved the complete removal of soil exceeding the Restricted Non-Critical Water Resource Area for the protection of human health.

The remedial action conducted for the soil and subsoil for this Operable Unit shall not affect the Department's decision regarding any remedy for groundwater at this site, if required. Any additional cost incurred for the remediation of groundwater at this site as a consequence of the planned development or the comn

factors considered in the selection of a remedial action, and this remedy is as protective as Alternative 3. In addition, pursuant to HSCA Regulation Subsection 8.5(c), preference shall be given to the remedial action that is the most cost effective. Alternative 2 is more cost effective than Alternative 3.

6 PUBLIC PARTICIPATION

The Department actively solicited public comments or suggestions on the Proposed Plan of Remedial Action and welcomed opportunities to answer questions. A public hearing was held at the City County Building in the Council Chambers on Thursday May 13, 1999. There were no public attendees at the hearing.

7 DECLARATION

This Final Plan of Remedial Action for the Peninsula Park L.L.C. property is protective of human health, welfare and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act and the Regulations.

Denise Ferguson-Southard
Director, Division of Air and Waste Management

Date

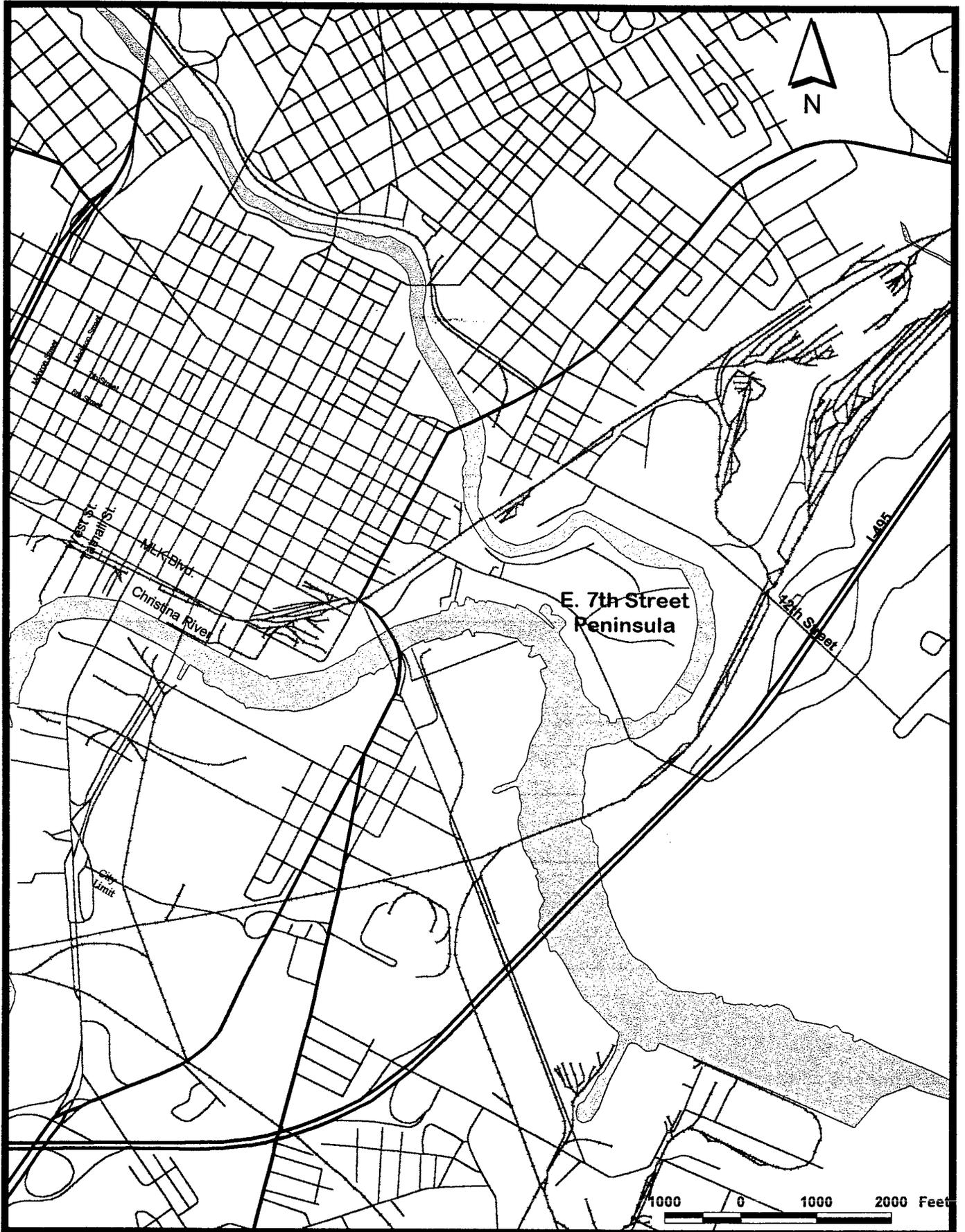


Figure 1: Location of the E. 7th Street Peninsula in the City of Wilmington

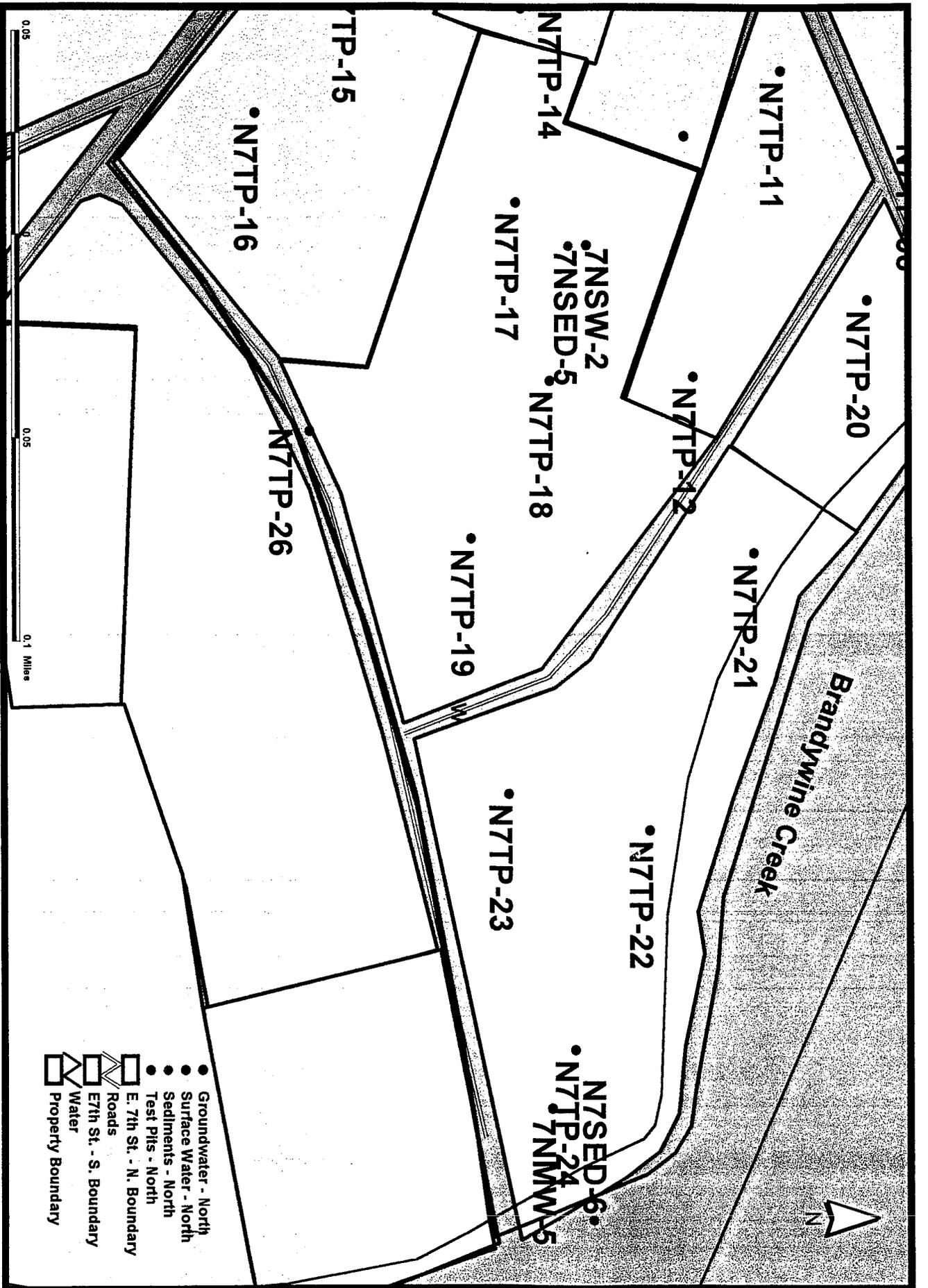


Figure 2: Julian Property on the E. 7th Street Peninsula

TABLE 1
 JULIAN SAMPLES SENT TO LABORATORY FOR
 CONFIRMATORY ANALYSIS

SAMPLE #	PAHc	PEST/PCB	METALS
7NTP-17D	X		X
7NTP-19D	X		X
7NTP-22D	X		
7NTP-23S	X	X	

7NMW-5 was sent for Total Metals, Dissolved Metals, Cyanide, Volatiles, Semi volatiles, and Pest/PCBs.

TABLE 2
 DATA SUMMARY FORM: INORGANICS
 GROUNDWATER SAMPLES
 ug/L

Sample Number	MW-5 Total ug/L	MW-5 Dissolved ug/L	EPA RBC* Tap Water ug/L 10/1/98	EPA MCL** Drinking Water ug/L 2/1/94	HSCA URS ug/L Feb-98
Aluminum	178	29.2	36,500 n	****	200
Antimony	7.7	6.9	14.6 n	6	6
Arsenic	4	4	0.045 n/c	50	1
Barium	240	225	2,555 n	***P 2,000	2000
Beryllium	0.1	0.1	73 c	4	4
Cadmium	0.1	0.1	18 n	5	5
Calcium	68,500	63,900	NL	NL	nl
Chromium	1.6	0.6	54,750/109.5 III/VI	***100	100/18 III/IV
Cobalt	2.4	1.8	2,190 n	NL	220
Copper	0.71	0.4	1,460 n	***P 1,300	1000
Iron	62,300	58,500	10,950 n	NL	300
Lead	1.8	1.8	NL	15	15
Magnesium	95,800	89,900	NL	NL	NL
Manganese	947	886	730 n	50	50
Mercury	0.1	0.1	^11 n	2	2
Nickel	2.5	2.5	730 n	100	100
Potassium	14,300	13,400	NL	NL	NL
Selenium	4	4	182.5 n	***50	50
Silver	1.5	1.5	182.5 n	NL	100
Sodium	181,000	168,000	NL	NL	NL
Thallium	3.8	3.8	2.55 n	2	2
Vanadium	0.68	0.6	255.5 n	NL	26
Zinc	0.5	0.5	10,950 n	NL	2000
Cyanide	10	ND	730 n	200	200

** = EPA Region III Risk-Based Concentration Tables. E. W. Johnson, 10/1/98
 ^ = EPA Region III Risk-Based Concentration Tables. R.I. Smith, 10/22/97
 *** = National Primary Drinking Water Standards, EPA, 2/1/94.
 **** = Water Quality Criteria Summary For Drinking Water, U.S. EPA, 1991
 ***** = Criterion pH Dependent; (*) = Hardness Dependent
 ND = Not Detected; NL = Not Listed
 C = Carcinogenic; N = Non Carcinogenic
 P = Proposed

TABLE 3
 DATA SUMMARY FORM: INORGANICS
 SOIL SAMPLES
 mg/Kg

Analyte	TP-17D	TP-19D	RBC*		HSCA** (Deep Soils) mg/Kg
			INDUSTRIAL mg/Kg 10/1/98	RESIDENTIAL mg/Kg 10/1/98	
Aluminum	10,400	16,200	2,044,000	78,214	20,000
Antimony	0.89	17.3	818	31	3
Arsenic				23/0.43	2/0.4
Barium	83.7	236	143,080	5,475	5,000
Beryllium	0.43	0.41	4100	160	0.5
Cadmium	0.02	3.8	2,044	78	4
Calcium	9,370	7,190	NL	NL	NL
Chromium	23.9	78	3,066,000/6,132	117,321/235	1,000/270
Cobalt	10.5	11.4	122,640	4,693	470
Copper	41.3	475	81,760	3,129	1,000
Iron	18,800	43,300	613,200	23,464	23,000
Lead	274	685	**1,000	**400	400
Magnesium	2,580	1,830	NL	NL	NL
Manganese	198	399	40,880	1,564	180
Mercury	0.16	1	610	23	10
Nickel	14.3	36.7	40,880	1,564	160
Potassium	639	509	NL	NL	NL
Selenium	1.2	1.8	10,220	391	39
Silver	0.36	0.45	10,220	391	39
Sodium	33.4	42.4	NL	NL	NL
Thallium	0.9	1.1	143	5.5	18
Vanadium	31.9	33.7	14,308	548	55
Zinc	108	765	613,200	23,464	1,000
Cyanide	0.6	0.81	40,880	1,564	160

^ = EPA Region III Risk-Based Concentration Tables: E. W. Johnson, 10/22/97
 * = EPA Region III Risk-Based Concentration Tables: E. W. Johnson, 10/1/98
 ** = HSCA Uniform Risk Based Remediation Standards for noncritical unrestricted land use, 2/1/98
 (+) = Chromium III, Chromium VI values
 NL = Not Listed
 ND = Not Detected
 C = Carcinogenic
 N = Non Carcinogenic
 J = analyte Present. Reported value may not be accurate or precise.

TABLE 4
DATA SUMMARY FORM: SEMIVOLATILE
SOIL SAMPLES
ug/Kg

Sample Number	17D	19D	22D	23S	RBC * Industrial Soil ug/Kg 10/1/1998	RBC * Residential Soil ug/Kg 10/1/1998	HSCA URS** (Deep Soils) ug/Kg 2/1/1998
1,4-Dichlorobenzene (P)	ND	110 J	ND	ND	238,467	26,614	27,000
Naphthalene	21 J	ND	91 J	54 J	40,880,000	1,564,286	310,000
2-Methylnaphthalene	ND	28 J	39 J	36 J	40,880,000	1,564,286	
Acenaphthylene	67 J	120 J	130 J	72 J	NL	NL	NL
Acenaphthene	52 J	67 J	54 J	85 J	122,640,000	4,692,857	470,000
2,4-Dinitrotoluene	37 J	48 J	43 J	56 J	4,088,000	156,429	16,000
Fluorene	70 J	130 J	77 J	95 J	81,760,000	3,128,571	310,000
Phenanthrene	550	830	660	1200	NL	NL	1,000,000
Anthracene	110 J	170 J	170 J	220 J	613,200,000	23,464,286	1,000,000
Carbazole	43 J	69 J	67 J	170 J	286,160	31,936	32,000
Fluoranthene	1100	1500	1300	2000	81,760,000	3,128,571	310,000
Pyrene	1100	1100	1000	1400	61,320,000	2,346,429	230,000
Benzo(a)anthracene	400	740	720	850	7,840	875	900
Chrysene	470	810	780	970	784,000	87,497	88,000
bis(2-Ethylhexyl)phthalate (DEHP)	ND	1000	54 J	100 J	408,800	45,623	46,000
Benzo(b)fluoranthene	430	1300	740	1100	7,840	875	900
Benzo(k)fluoranthene	270 J	380 J	550	470	78,400	8,750	9,000
Benzo(a)pyrene	440	680	750			87	90
Indeno(1,2,3-cd)Pyrene	330	500	410	520	7,840	875	900
Dibenz(a,h)anthracene	110	220 J	ND	26 J	784	87	90
Benzo(g,h,i)perylene	380 J	430 J	310 J	360 J	NL	NL	NL

^ = EPA Region III Risk-Based Concentration Tables, E. W. Johnson, 10/22/97

* = EPA Region III Risk-Based Concentration Tables, E. W. Johnson, 10/1/98

** = HSCA Uniform Risk-based Remediation Standards for noncritical unrestricted land use, 2/1/98

NL = Not Listed

ND = Not Detected

C = Carcinogenic

N = Non Carcinogenic

J = Analyte Present. Reported value may not be accurate or precise

TABLE 5
 DATA SUMMARY FORM: PESTICIDES AND PCB'S
 SOIL SAMPLES
 ug/Kg

Sample Number Dilution	23S 3.0	RBC* Industrial Soil ug/Kg 10/1/98	RBC* Residential Soil ug/Kg 10/1/98	HSCA** URS (Deep Soils) ug/Kg 2/1/98
alpha-HCH	6	910 C	100 C	100
beta-HCH	6	3,200 C	350 C	400
delta-HCH	6	NL	NL	NL
gamma-HCH (Lindane)	6	4,400 C	490 C	500
Heptachlor	6	1,272 C	142 C	100
Aldrin	6	337 C	38 C	40
Heptachlor epoxide	6	629 C	70 C	70
Endosulfan I (alpha)	8	12,264,000 N	469,286 N	47,000
Dieldrin	12	358 C	40 C	40
4,4-DDE	12	16,833 C	1,879 C	2,000
Endrin	12	613,200 N	23,464 N	2,000
Endosulfan II (beta)	12	12,000,000^ N	470,000^ N	47,000
4,4-DDD	12	23,847 C	2,661 C	3,000
Endosulfan sulfate	12	NL	NL	NL
4,4-DDT	12	16,833 C	1,879 C	2,000
Methoxychlor	60	10,220,000 N	391,071 N	39,000
Endrin ketone	12	610,000^ C	23,000^ C	2,000
Endrin aldehyde	12	610,000^ C	23,000^ C	2,000
alpha-Chlordane	15	16,352 C	1,825 C	2,000
gamma-Chlordane	8.8	16,352 C	1,825 C	2,000
Toxaphene	600	5,203 C	581 C	600
Artochlor-1016	120	81,760 C	5,475 C	1,000
Artochlor-1221	230	2,862 C	319 C	4,000
Artochlor-1232	120	2,862 C	319 C	4,000
Artochlor-1242	120	2,862 C	319 C	4,000
Artochlor-1248	120	2,862 C	319 C	1,000
Artochlor-1254	1000	2,862 C	319 C	200
Artochlor-1260	1000	2,862 C	319 C	3,000

^ = EPA Region III Risk-Based Concentration Tables, E. W. Johnson, 10/22/97
 * = EPA Region III Risk-Based Concentration Tables, E. W. Johnson, 10/1/98
 ** = HSCA Uniform Risk-based Standards (for noncritical unrestricted land use), 2/1/98
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