

80 LISTER AVENUE PRELIMINARY REPORT

PRESENTED TO

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY

DIAMOND SHAMROCK CORPORATION

JANURY 31, 1985

ANALYTICAL RESULTS

- INTRODUCTION

- QUALITY CONTROL

- BUILDINGS
 - OFFICE
 - WAREHOUSE
 - PROCESS BUILDING
 - MANUFACTURING

- SOILS
 - NEAR SURFACE
 - DIOXIN RESULTS
 - PRIORITY POLLUTANTS RESULTS
 - OFFSITE
 - DIOXIN RESULTS
 - BORING
 - DIOXIN RESULTS
 - PRIORITY POLLUTANTS RESULTS

- WATER
 - DIOXIN RESULTS
 - PRIORITY POLLUTANTS RESULTS

- SEWER & SUMPS

- RIVER SEDIMENTS
 - DIOXIN RESULTS
 - PRIORITY POLLUTANTS RESULTS

INTRODUCTION

- 2,3,7,8-TETRACHLOROCLIBENZO-P-DIOXIN

- PRIORITY POLLUTANTS + 40 EXTRANEOUS IDENTIFICATIONS
 - ACID
 - BASE NEUTRAL
 - VOLATILE ORGANIC
 - PESTICIDES
 - HERBICIDES
 - METALS
 - TOTAL CYANIDES
 - TOTAL PHENOLS

- IH SAMPLES (DIOXIN AND OTHER PARAMETERS)(WORKER SAFETY)

- ASBESTOS

- AMBIENT AIR (IN ANALYSIS)
 - PESTICIDES
 - PAH
 - VOA
 - TSP
 - IHP
 - DIOXIN
 - METALS

12-16-84

DEP\DA0050616

- 1406 SAMPLES COLLECTED
- 737 SAMPLES ARCHIVED (OR FOR GEOTECHNICAL EVALUATION)
 - 134 SOIL BORINGS
 - 52 NEAR SURFACE
 - 428 DRUMS
 - 128 TANKS

- 669 SAMPLES FOR ANALYSES

#	SAMPLE	ANALYSIS	
187	VOA		38
116	AC/B/N		69
116	HERBICIDES		10
116	PESTICIDES		15
26	ASBESTOS		1
23	IH (OTHERS)		
117	PHENOLS		1
117	CYANIDES		1
117	METALS		13
<u>556</u>	DIOXIN		<u>1</u>

TOTAL 1821 ANALYSIS GROUPS 149 COMPOUNDS

TOTAL COMPOUNDS 20,370

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DATA PRESENTATION

● PRESENTED AS OVERVIEW OF RESULTS

--- SPECIFIC RESULTS FOR DIOXIN BY LOCATION (EXCEPT FOR BUILDING)

--- CONCENTRATION RANGES FOR ALL PRIORITY POLLUTANTS
IDENTIFIED AS A SUMMARY BY AREAS (I.E., RIVER SEDIMENTS, ETC.)

● DATA BEING EVALUATED AT THIS TIME

PRELIMINARY RESULTS

UNTIL FINAL REPORTS

● FOOTNOTES

>, \$ SAMPLES SATURATED INSTRUMENTATION
REANALYSIS BEING CONDUCTED

BLANKS IN DATA

DIOXIN - RESULTS NOT AVAILABLE

PRIORITY POLLUTANT SUMMARIES - COMPOUND NOT
IDENTIFIED IN SAMPLE

DETECTION LIMITS

PRIORITY POLLUTANTS - DEPEND ON LEVELS ANALYZED
AS DIOXIN GENERALLY <0.78 ND

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QUALITY CONTROL SAMPLE AND CHECK FREQUENCIES

PROGRAM LEVEL				(% of Samples)				LABORATORY LEVEL			
Field Blanks	Splits With NJDEP	Interlaboratory Analyses	ITC	Method Blanks	Blind Splits	Sample/Blank Spikes	Internal Surrogate Standards	Reference (Calibration) Standards			
DIOXIN											
5	-	-	-	5	-	5	100	1/shift			
1	5	1	1	5	5	5	100	1/shift			
1	5	1	1	5	5	5	100	1/shift			
VOLATILES											
5	5	1	1	5	5	5	100	1/shift			
5	5	1	1	5	5	5	100	1/shift			
SEMI-VOLATILES											
1	5	1	1	5	5	5	100	1/shift			
1	5	1	1	5	5	5	100	1/shift			
PP METALS											
1	5	1	1	5	5	5	---	1/shift			
1	5	1	1	5	5	5	---	1/shift			
CYANIDE											
1	5	1	1	5	5	5	---	1/shift			
1	5	1	1	5	5	5	---	1/shift			
TOTAL PHENOLS											
1	5	1	1	5	5	5	---	1/shift			
1	5	1	1	5	5	5	---	1/shift			

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PROGRAM LEVEL QUALITY CONTROL

A. NON-VOA Field Blanks

<u>Parameter</u>	<u>#Field Blanks</u>	<u>% Frequency</u>
Metals	2	1.8
Cyanide	2	1.8
Phenols	2	1.8
Extractable Organics	2	1.8
2,3,7,8-TCDD	2	1.3

B. Blank Samples Initiated For 2,3,7,8-TCDD Analysis

<u>Matrix</u>	<u>#Blank Samples</u>	<u>Average Result</u>
Wipes	3	ND(3.7 ng/wipe)
Soil	3	1.0 ppb (Clarksburg Soil)

C. Blank-Spike Samples Initiated for 2,3,7,8-TCDD Analysis

<u>Matrix</u>	<u>#Spiked Samples</u>	<u>Average Recovery</u>
Wipes	3	90%
Soil	3	118%

D. Blank Samples Initiated For Full PP Analysis

<u>Matrix</u>	<u>#Samples</u>
Water	1

E. ITAS On-Site Sample Splits

<u>Matrix</u>	<u>#QC Samples/#Collected</u>	<u>Analysis</u>	<u>% Frequency</u>
Chip	3/74	TCDD Only	4.1%
Soil	3/75	Full PP Parameters	4.0%
Soil	3/57	TCDD Only	5.3%
Water	1/19	Full PP Parameters	5.3%

F. ITAS Interlaboratory Splits

<u>Matrix</u>	<u>#Samples Split</u>	<u>% Frequency</u>
Soil	2	1.5%
Water	1	5.3%

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ITAS BLIND SAMPLE SPLITS: PROGRAM QC RESULTS
2,3,7,8-TCDD ANALYSIS ONLY

<u>Matrix</u>	<u>Original #/Split #</u>	<u>Original Results</u>	<u>Split Result</u>
Chip	L0111/L0112	0.70	0.95 ppb
Chip	L0890/L0891*	1.25 ppb	1.20 ppb
Chip	L0894/L0895	ND(0.78 ppb)	0.48 ppb
Soil Boring	L1039/L1049	> 1500. ppb	>1300.ppb
Near Surface Soil	L1517/L1519	1.2 ppb	0.7 ppb
Near Surface Soil	L1661/L1663	460. ppb \$	440. ppb \$

*these samples were collected from the Sergeant site, concurrently with Lister Avenue sampling, so QC samples overlap the two sites.

\$result outside linear range....

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DIOXIN QC SUMMARY
80 LISTER AVENUE
DUPLICATE AND SPIKE RESULTS

NUMBERS	ORIGINAL (ppb)	DUPLICATE (ppb)	RELATIVE ¹ % DIFFERENCE	SPIKE (ppb)
0049 (chip)	2.0	1.8	11	
0097 (chip)	ND(0.08)	ND(0.23)		0.77
0190 (sediment)	0.53	0.55	4	1.30
0278 (chip)	9.2	14.0	41	7.4
0204 (sediment)	0.6	1.1	59	1.4
0390 (chip)				1.0
0307 (sediment)	1.7			2.15
0417 (soil)	ND(0.3)	ND(0.09)	—	1.15
0451 (chip)	77	77	0	138
0493 (bulk)	3.0	2.5	18	—
H0673 (water)				—
0555 (chip)	43	58	30	65.9
0640 (chip)	18.0	18.1	0	17.6
0695 (chip)	0.93	1.0	7	2.4
0760 (soil)	2.4	1.2	67	2.4
0971 (soil)	1.7	1.7	0	2.5
1047 (soil)	5.8			
1516 (surf. soil)	0.4	0.3	29	1.6
1567 (surf. soil)	217*	223*	3	200
1604 (soil boring)	268	257	4	
1744 (surf. soil)	33.4	26	25	29
1789 (sediment)	324			
1245 (soil)	2.2	2.9	27	2.7
1335 (soil)	214	193.0	10	DID NOT RUN DUE TO HIGH LEVEL TCDD
1662 (surf. soil)	7.3			
1410 (bulk)				
1834 (soil boring)				

$$^1 \text{ Relative \% Difference} = \frac{|\text{original} - \text{duplicate}|}{\text{original} + \text{duplicate}} \times 100$$

* (out of linear range)

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DIOXIN QC SUMMARY
80 LISTER AVENUE
LABORATORY BLANK RESULTS

BLANK #	RESULT	BLANK #	RESULT
<u>SOLID BLANKS</u>			
086	ND (0.10)	115	ND (0.20)
088A		116	ND (0.29)
088B		117	ND (0.7)
090	ND (0.01)	120	ND (0.5)
094	ND (0.15 ng/wipe)	121	
095	ND (.001)	122	ND (0.3)
096	ND (0.18)	123	
097A	ND (0.04 ng/sample)	124	ND (0.33)
097B	ND (0.45 ng/sample)	125	ND (0.39)
098	ND (0.62 ng/sample)	128	ND (0.35)
099	ND (0.77 ng/sample)	129	ND (0.69)
100	ND (0.13)	130	ND (0.5)
101	ND (0.77 ng)	132	
102	ND (0.37)	133	ND (0.34)
103	ND (0.29)	134	ND (0.53)
104	ND (0.5)	135	
105		138	ND (0.75)
108	ND (0.62 ng/sample)	140	ND (0.46)
109	ND (0.42)	144	
110	ND (0.7)		
112	ND (0.3)		
113	ND (0.02)		
<u>WATER BLANKS</u>			
089	ND (0.002) 1L		
095	ND (0.001) 1L		
119	ND (3.7 ppt)		

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BUILDING AND STRUCTURES

● 140 SAMPLES COLLECTED

--- 71 CHIP SAMPLES DIOXIN

--- 51 WIPE SAMPLES DIOXIN

--- 18 BULK SAMPLES
(13 ASBESTOS)
(5 DIOXIN)

● WIPES

FLOORS

WALLS

FIXTURES

AIR DUCTS

● CHIPS

FLOORS

WALLS

● BULK

INSULATION

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OFFICE BUILDING

WIPES (NG/M²)

	CONC. RANGE	NO. OF SAMPLES COLLECTED	POSITIVE SAMPLES	SAMPLE NOT INCLUDED
FIRST FLOOR	1,100-38	10	10	0
SECOND FLOOR	>14,000-10	11	11	0
ROOF	168-ND(0.76)	2	1	0

CHIPS (µG/KG)

FIRST FLOOR	69-2	5	5	0
EXTERIOR	ND	11		4

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WAREHOUSE

WIPES (NG/M²)

	CONC. RANGE	NO. OF SAMPLES COLLECTED	POSITIVE SAMPLES	SAMPLE NOT INCLUDED
INTERIOR	>8,000-130	7	6	1
EXTERIOR	13	1	1	0

CHIPS (UG/KG)

INTERIOR	192-48	4	4	0
EXTERIOR	16-0.33	12	9	3

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MANUFACTURING BUILDING

WIPES (NG/M²)

	CONC. RANGE	NO. OF SAMPLES COLLECTED	POSITIVE SAMPLES	SAMPLE NOT INCLUDED
INTERIOR	>7,000-630	4	3	0

CHIPS (µG/KG)

INTERIOR	1,320-6.0	12	9	3
EXTERIOR	203-0.93	11	11	0

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PROCESS BUILDING

WIPES (NG/M²)

	CONC. RANGE	NO. OF SAMPLES COLLECTED	POSITIVE SAMPLES	SAMPLE NOT INCLUDED
FIRST FLOOR	>130,000-1,200	6	3	3
SECOND FLOOR	1,200- 270	3	3	0
THIRD FLOOR	3,100- 60	3	3	0
EXTERIOR	12-6.4	2	2	0

CHIPS (UG/KG)

FLOOR	>1,680-43	4	3	1
EXTERIOR	77-2.7	6	6	0
BULK	128- 3	5	5	0

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OTHER STRUCTURES

	Chips ($\mu\text{g}/\text{Kg}$)			
	<u>Conc. Range</u>	<u>No. of Samples Collected</u>	<u>Positive Samples</u>	<u>Samples Not Included</u>
STACK	10.5-1.2	3	3	0
WELL HOUSE	50.0-	2	1	1
TANKS		135 ¹		
DRUMS		570 ²		

1) 12 Taken for analysis

2) Haz cat, 43 for analysis

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NEAR SURFACE SOIL SAMPLES

● 21 LOCATIONS SAMPLED

--- 6 SAMPLES COLLECTED PER LOCATION

0-6" DIOXIN + PRIORITY POLLUTANTS
6-12" DIOXIN
12-24" DIOXIN + PRIORITY POLLUTANTS
24-36" ARCHIVED (H)(R)
36-48" ARCHIVED (H)(R)
48-60" ARCHIVED (H)(R)

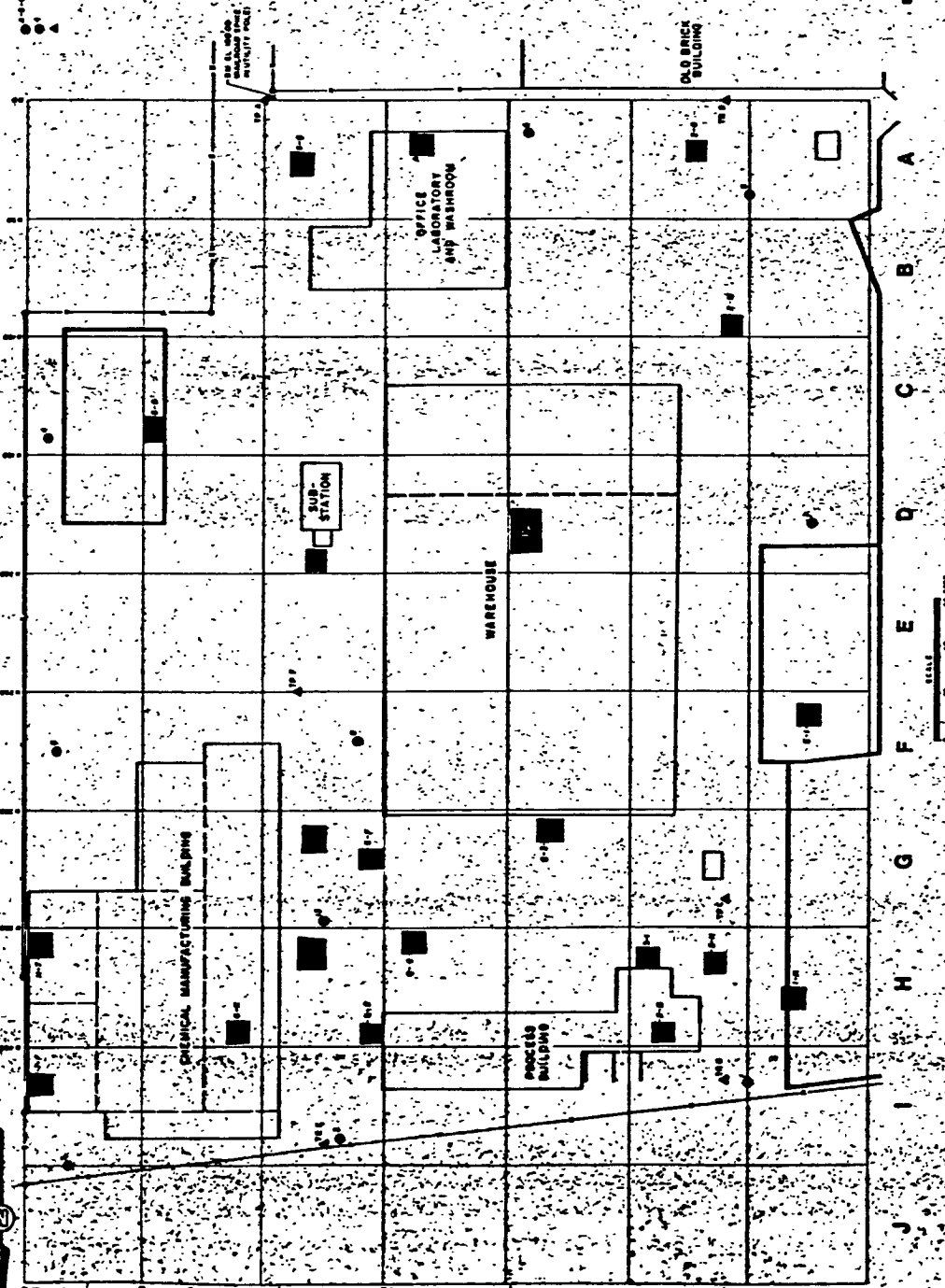
--- 115 SAMPLES COLLECTED

63 DIOXIN ANALYSIS
42 PRIORITY POLLUTANT ANALYSIS
52 ARCHIVED (11 REFUSAL)

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LEGEND:
 ●-1-0 NEAR SURFACE SOIL SAMPLE
 ○-1-0 SOIL SAMPLE
 ▲ SURVEY TRAILERING POINT



NEAR SURFACE SOIL SAMPLE LOCATIONS

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80 LISTER AVENUE
NEAR SURFACE SOIL SUMMARY
DIOXIN ANALYTICAL RESULTS (ppb)²

DEPTH IN INCHES	STATION NUMBERS														11-7-H	11-7-F	11-7-I	11-7-K			
	A-2-G	A-4-F	A-5-G	B-2-M	C-6-B	D-4-N	F-1-G	F-5-D	F-5-E	F-5-F	G-3-I	G-3-L	G-4-A	G-5-E					G-5-F	H-1-H	H-2-B
0-6	296.0/ 249.0	0.4	500.0	143.0	1.9	3.6	153.0	40.0	268.0	1110.0	261.0	395.0	222.0	325	59	94.0	>1506.0 ¹	29	>5760.0 ¹	30	2.5
6-12	209.0	1.2/ 0.7	460.0/ 440.0	11	07.0	2.3	4.2	14	247.0	96.0	126.0	>130.0 ¹	217.0	359.0	31	47.0	1180.0	69	>1550.0 ¹	20	1.6
12-24	214.0	7.1	7.3	2.0	12.2	1.2	0.6	11	>19,000	26.0	33	>1515.0 ¹	80.0	229.0	22	177.0	286.0	336.0	231.0	226.0	0.9
24-36	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II
36-48	II	II	II	II	R	II	II	II	II	R	II	II	II	II	II	II	R	II	II	R	II
40-60	II	II	II	II	R	R	R	II	II	R	II	II	II	II	II	II	R	R	R	R	II

TOTAL AVAILABLE - 115 SAMPLES

¹ Saturated Sample - Estimated Concentration

² Concentrations > 2000 ppb are out of linear range and indicate additional work necessary to confirm results.

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II - (In Inc) for analysis
R - Refusal

PRELIMINARY DETECTED VOLATILE ORGANICS NEAR SURFACE SOILS

--- (Expressed as µg/kg or ppb)

	0-6"			12-24"			Off-Sites		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Benzene	21	1	21	23,000-11	3	21			
Chlorobenzene	8,400-39	2	21	170,000-22	6	21			
Chloroform	38	1	21	38,000-13	2	21			
Ethylbenzene				60,000	1	21			
Methylene chloride	1,500-24	21	21	130,000-22	21	21	66-48	3	3
Tetrachloroethane	860	1	21	36,000-1,300	2	21			
Toluene				2,000,000-7	6	21			
Trichloroethene				9	1	21			
Acetone	5,000-110	12	21	2,000-68	15	21			
2-Butanone	1,400-130	2	21	9,200-51	6	21			
Carbon disulfide				7	1	21			
2-Hexanone				36,000	1	21			
Total xylenes				310,000	1	21			

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PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANIC COMPOUNDS NEAR SURFACE SOILS
(Expressed as µg/kg or ppb)

	0-6"			12-24"			Off-Sites		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
2,4,6-Trichloro-phenol	1,500,000-1,300	4	21	1,700,000-8,700	4	21			
2,4-Dichloro-phenol	3,600,000- 980	7	21	2,500,000- 870	8	21			
2,4-Dimethylphenol				1,700,000	1	21			
Benzoic Acid	1,800	1	21						
2,4,5-Trichloro-phenol	1,500,000- 870	5	21	7,500,000-2,500	5	21			
Acenaphthene	250	1	21						
1,2,4-Trichloro-benzene	17,000-1,500	2	21	19,000	1	21			
Hexachlorobenzene	110,000- 560	13	21	720,000-3,200	9	21	620,000-110,000	2	3
1,2-Dichloro-benzene	520- 230	2	21	9,000	1	21			
1,3-Dichloro-benzene				610	1	21			
1,4-Dichloro-benzene	1,400- 470	3	21	1,300	1	21			
Fluoranthene	1,500- 330	5	21	64,000- 670	6	21	3,500- 2,600	3	3
Naphthalene	200	1	21	8,200	1	21	480	1	3
Bis(2-ethylhexyl)-phthalate	1,300- 310	3	21	310,000-5,100	3	21	1,700- 670	3	3
Butylbenzyl-phthalate				37,000- 220	2	21	840	1	3

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PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANIC COMPOUNDS NEAR SURFACE SOILS
(Expressed as µg/kg or ppb)

CONTINUED

	0-6"			12-24"			Off-Sites		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Di-N-butyl phthalate							200	1	3
Benzo(A)anthracene	47,000- 910	3	21	47,000- 510	5	21	1,900-1,500	3	3
Benzo(A)pyrene	4,800-1,000	3	21	44,000- 560	5	21	1,500-1,200	3	3
Benzo(B)fluoranthene	7,100-2,100	6	21	71,000- 940	5	21	2,700-2,200	3	3
Chrysene	12,000-2,600	2	21	120,000-1,400	6	21	3,700-3,200	3	3
Acenaphthylene	690- 210	2	21	860- 240	2	21	610- 250	3	3
Anthracene	3,000- 310	4	21	1,200- 630	3	21	600- 580	2	3
Benzo(GHI)perylene	11,000-3,300	3	21	32,000	1	21	2,300-1,500	3	3
Fluorene	320	1	21	300- 250	2	21	2,800-1,300	3	3
Phenanthrene	4,100- 250	5	21	61,000- 440	6	21			
Indeno(1,2,3,-CD)-pyrene	2,500-2,200	2	21	21,000- 480	2	21	1,700-1,100	3	3
Pyrene	2,200- 230	6	21	130,000- 280	7	21	1,700-1,400	3	3
Dibenzofuran				450	1	21			
2-Methylnaphthalene	220	1	21	21,000	1	21			

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PRELIMINARY DETECTED HERBICIDES; PESTICIDES AND PCBs NEAR SURFACE SOILS

(Expressed as µg/kg or ppb)

	0-6"			12-24"			Off-Sites		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
4,4'-DDT	3,500,000- 620	19	21	5,090,000-1,400	15	21	200	1	3
4,4'DDE ^b	93,000- 20	14	21	37,000-1,200	8	21	77- 32	2	3
4,4'DDD ^b	13,000-1,700	3	21	164,000-1,200	5	21			
Alpha-Endosulfan	8,900	1	21	1,400	1	21			
PCB-1260							1,700-1,200	2	
Dalapon	70,000- 190	9	21	29,000- 420	9	21			
MCPA ^a									
2,4-D	7,600- 740	10	21	85,000- 190	13	21			
2,4,5-T	2,300- 190	9	21	86,000- 490	10	21			

^a Being investigated.

^b Calculated for catalysis.

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PRELIMINARY DETECTED INORGANIC PARAMETERS NEAR SURFACE SOILS
(Expressed as µg/g or ppm)

	0-6"			12-24"			Off-Sites		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Antimony	6.6 - 0.09	14	21	3.0 - 0.10	16	21	9.1- 5.0	3	3
Arsenic	23 - 0.50	21	21	41 - 0.60	21	21	10 - 4.6	3	3
Beryllium	0.85- 0.22	11	21	8.3 - 0.27	10	21	0.5- 0.47	2	3
Cadmium	3.9 - 0.09	12	21	15 - 0.08	15	21	2.8- 2.0	3	3
Chromium	50 - 1.1	21	21	50 - 0.9	21	21	98 - 51	3	3
Copper	260 - 4.6	21	21	250 - 2.0	20	21	311 -127	3	3
Lead	887 - 2.0	21	21	646 - 2.1	20	21	1700 -595	3	3
Mercury	39 - 0.1	19	21	37 - 0.4	17	21	2.0- 0.6	3	3
Nickel	82 - 3.7	19	21	40 - 1.2	19	21	74 - 35	3	3
Selenium	148	1	21	2.2 - 0.12	2	21			
Silver	1.2 - 0.4	4	21	0.45	1	21	1.4- 0.45	3	3
Zinc	29,000 -20	21	21	1300 -20	21	21	828 -428	3	3
Total Cyanide	1.97- 0.15	18	21	2.8 - 0.10	19	21	2.9- 0.78	3	3
Total Phenols	47.8 - 0.28	19	21	3380 - 0.10	21	21	117	1	3

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PRELIMINARY OFF-SITE DIOXIN RESULTS

(Expressed as $\mu\text{g}/\text{kg}$ or ppb)

<u>LOCATION</u>	<u>DEPTH (INCHES)</u>	<u>RESULTS</u>
HARRISON AVENUE	0-6"	ND (0.17)
RAYMOND BLVD.	0-6"	ND (0.54)
ROANOKE AVENUE	0-6"	ND (0.68)

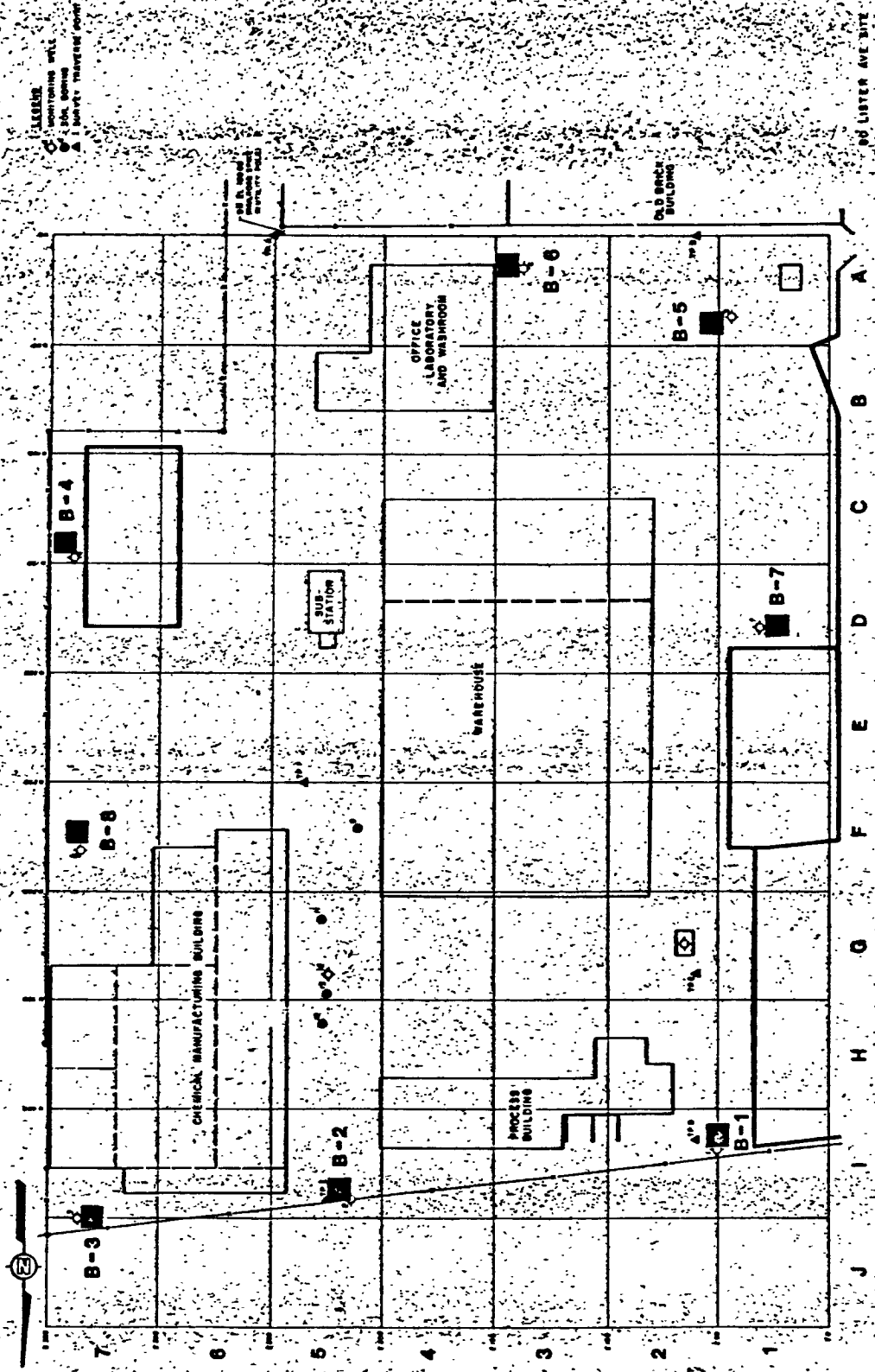
SHERWIN WILLIAMS BORING

0-6"	1.2
6-12"	5.1
12-12"	3.4
ABOVE SILT	ND (0.57)
SILT	LOW RECOVERY

12/16/84

12-18-84

BOREHOLE SAMPLE LOCATIONS



SOIL BORING SAMPLES

- **8 BORING LOCATIONS**
- **187 SAMPLES COLLECTED**
- **5 SAMPLES PER BOREHOLE FOR ANALYSIS**
 - 0-6" DIOXIN + PRIORITY POLLUTANTS**
 - 6-12" DIOXIN**
 - 12-24" DIOXIN + PRIORITY POLLUTANTS**
 - ABOVE SILT DIOXIN + PRIORITY POLLUTANTS**
 - SILT LAYER DIOXIN**
- **39 COLLECTED FOR DIOXIN**
- **24 COLLECTED FOR DIOXIN + PRIORITY POLLUTANTS**
- **124 COLLECTED FOR ARCHIVE AND GEOTECHNICAL EVALUATION**
- **ONE SAMPLE NOT COLLECTED AT SILT LAYER**

12-16-84

**80 LISTER AVENUE
SOIL BORING SUMMARY
DIOXIN ANALYTICAL RESULTS (ppb)**

<u>BORING #</u>	<u>STATION #</u>	<u>DEPTH IN FEET</u>	1	2	3	4	5	6	7	8
0-0.5	I-2-L	>1340	I-5-A	I-7-K	C-7-C	A-2-K	A-3-C	D-1-F	F-7-B	
0.5-1		218	>260	350	130	56.3	19.7	62	>1450	
1-2		94	>530	1500	477.0	36.0	18.8	7.5	109	
Above Silt			450	59	247	72	7.4	4.7	600	
Archieved Samples			21.0 @ 13.5-15.2'	5.8 @ 7-8.5'	71.8 @ 6.5-8'	0.36 @ 6.5-8.5'	ND(0.02) 6.5-8'	0.78 @ 6.5-8.7'	2.4 @ 6.5-8'	
Silt Layer			No 200 Series	200-201	201-203	200-203	200-204	200-204	200-204	
			MS	2.8 @ 11.5-12.4'	2.1 @ 10-12'	ND(0.07) 12.7-14.7'	ND(0.3) 11-13'	ND(0.06) 10.7-12.7'	0.49 @ 10-12'	
			200-201	200-201	200-201	200-203	200-204	200-204	200-204	
			2.2 @ 17-19'							

12-16-84

PRELIMINARY DETECTED VOLATILE ORGANICS - SOIL BORINGS
 (Expressed as µg/kg or ppb)

	0-6"			12-24"			Above Silt		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Benzene	26	1	8	1,700 - 680	2	8	22,000 - 5,600	2	8
Chlorobenzene	330	1	8	24,000 - 49	4	8	100,000 - 17	5	8
Ethylbenzene				100	1	8	14,000 - 220	2	8
Methylene chloride	410 - 63	8	8	1,600 - 6	8	8	11,000 - 48	8	8
Tetrachloroethane	15	1	8						
Toluene	12 - 7	2	8	2,400 - 9	4	8	180,000 - 11	2	8
Acetone	160 - 57	5	8	2,300 - 110	7	8	4,500 - 85	6	8
2-Butamone				8,900	1	8	20,000 - 6,900	2	8
Carbon disulfide				7	1	8	13	1	8
Total xylenes				580	1	8	1,200	1	8

12/16/84

PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANICS - SOIL BORINGS
 (Expressed as µg/kg or ppb)

(Continued)

	0-6"			12-24"			Above 51ft		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Benzo(B)Fluoranthene				7,400	1	8	1,900	1	8
Chrysene				4,200	1	8			
Anthracene	950	1	8	1,200	1	8			
Fluorene	2,100	1	8	4,200	1	8			
Phenanthrene	3,800 - 230	3	8	14,000 - 720	5	8	2,200 - 350	2	8
Indeno(1,2,3-CD)-pyrene				1,400	1	8			
Pyrene	8,100 - 270	5	8	18,000 - 1,300	5	8	460 - 420	2	8
Benzyl alcohol				20,000	1	8	41,000	1	8
Dibenzofuran	1,300	1	8	2,100.	1	8			
2-Methylnaphthalene	2,600	1	8	8,000 - 850	3	8	14,000 - 1,600	4	8

12/16/84

PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANICS - SOIL BORINGS
(Expressed as µg/kg or ppb)

	0-6"			12-24"			Above Silt		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
2,4,6-Trichloro-phenol	32,000 - 1,300	3	8	4,400 - 3,600	2	8	360,000 - 2,000	3	8
2-Chlorophenol	2,000 - 230	2	8	820	1	8	6,000 - 1,200	2	8
2,4-Dichlorophenol	98,000 - 5,900	3	8	27,000 - 4,700	3	8	1,400,000 - 1,700	5	8
Phenol	3,100	1	8	12,000 - 1,400	2	8	13,000 - 820	2	8
2,4,5-Trichloro-phenol	20,000 - 1,500	4	8	16,000 - 1,600	3	8	270,000 - 12,000	4	8
Acenaphthene	2,200	1	8	4,600	1	8			
1,2,4-Trichloro-benzene	1,100 - 430	2	8	8,500 - 580	2	8	14,000	1	8
Hexachlorobenzene	35,000 - 6,500	5	8	84,000 - 4,900	4	8	30,000	1	8
2-Chloronaphthalene	1,100	1	8	850	1	8	13,000	1	8
1,2-Dichlorobenzene	770	1	8	8,600 - 570	2	8	3,400	1	8
1,3-Dichlorobenzene				780	1	8			
1,4-Dichlorobenzene	2,700	1	8	49,000 - 960	3	8	28,000 - 4,600	3	8
Fluoranthene	11,000 - 400	5	8	20,000 - 3,200	4	8	1,300 - 560	3	8
Naphthalene	1,300	1	8	11,000	1	8	16,000 - 260	5	8
Bis(2-ethylhexyl)-phthalate	14,000	1	8	5,100 - 2,600	2	8			
Benzo(A)anthracene				1,900	1	8			
Benzo(A)pyrene				1,600	1	8			

12-16-84

PRELIMINARY DETECTED HERBICIDES; PESTICIDES AND PCBs - SOIL BORINGS
(Expressed as µg/kg or ppb)

	0-6"			12-24"			Above 511t		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
4,4'-DDT	830,000 - 17,000	5	8	3,200,000 - 43,000	5	8	140,000 - 100	4	8
4,4'-DDE ^a	57,900 - 6,500	6	8	297,000 - 2,400	6	8	1,500 - 290	4	8
4,4'-DDD ^a	78,000 - 2,000	5	8	182,000 - 3,900	5	8	370,000 - 42	5	8
Beta-BHC	130,000 - 830	2	8	120,000	1	8	100,000	1	8
Dalapon	21,000 - 160	6	8	94,000 - 300	5	8			
Dicamba	1,700 - 230	3	8	1,600 - 100	3	8	160	1	8
MCPD	^a	5	8	^a	5	8	^a	2	8
MCPA	^a	2	8	^a	2	8	^a	1	8
2,4-D	120,000 - 240	8	8	16,000 - 110	8	8	2,800,000 - 140	7	8
2,4,5-T	54,000 - 94	8	8	14,000 - 95	7	8	690,000 - 610	5	8
2,4-DB				1,400	1	8	170	1	8
Dinoseb (DNBP)	590 - 210	2	8						

12/16/84

PRELIMINARY DETECTED INORGANIC PARAMETERS - SOIL BORINGS
 (Expressed as µg/g or ppb)

	0-6"			12-24"			Above Silt		
	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed	Conc. Range	# Positive Results	# Samples Analyzed
Antimony	11 - 0.2	8	8	3.5 - 0.1	8	8	1.1 - 0.1	6	8
Arsenic	20 - 1.0	8	8	26 - 2.1	8	8	120 - 5.7	8	8
Beryllium				3.7 - 0.2	4	8	1.4 - 0.1	5	8
Cadmium	3 - 0.5	8	8	2.5 - 0.3	8	8	3 - 0.1	6	8
Chromium	72 - 7.9	8	8	40 - 13	8	8	25 - 5.5	8	8
Copper	290 - 46	8	8	730 - 82	8	8	6,600 - 24	8	8
Lead	1,400 - 73	8	8	2,300 - 180	8	8	11,000 - 19	8	8
Mercury	11 - 0.1	8	8	7.6 - 0.5	8	8	95 - 0.2	7	8
Nickel	95 - 15	8	8	170 - 13	8	8	72 - 1.6	8	8
Silver	0.92 - 0.2	6	8	0.9 - 0.3	4	8	1.8 - 0.4	5	8
Zinc	3,900 - 180	8	8	1,500 - 190	8	8	1,300 - 45	8	8
Total Cyanides	1.2 - 0.25	8	8	3.7 - 0.5	8	8	1.2 - 0.1	8	8
Total Phenols	13 - 0.2	8	8	12 - 0.2	8	8	1,600 - 0.3	7	8

12/16/84

WATER SAMPLES

- **2 SAMPLINGS OF 8 WELLS ON SITE**
 - 1ST 10-09-84
 - 2ND 10-30-84
 - PASSAIC RIVER WATER

- **17 SAMPLES COLLECTED**
 - 17 DIOXIN
 - 17 PRIORITY POLLUTANT
 - 1ST COMPLETE
 - 2ND NOT TABULATED

- **1 BACKGROUND WELL SHERWIN WILLIAMS**
 - SAMPLED 12-14-84

12-16-84

PRELIMINARY DIOXIN WATER ANALYSIS
 (Expressed as µg/l or ppb)

WELL NUMBER	LOCATION	SAMPLING DATE	RESULTS	SAMPLING DATE	RESULTS
1	I-2-L	10/09/84	0.18	10/30/84	
2	I-5-A	10/09/84	>7.4	10/30/84	>4.8
3	I-7-K	10/09/84	VOID	10/30/84	0.03
		10/10/84	0.25		
4	C-7-C	10/09/84	0.20	10/30/84	0.74
5	A-2-K	10/09/84	ND(0.008)	10/30/84	0.0059
6	A-3-C	10/09/84	0.012	10/30/84	0.0086
7	D-1-F	10/09/84	0.016	10/30/84	
8	F-7-B	10/09/84		10/30/84	>1.1
	PASSAIC RIVER WATER	10/09/84	ND(0.004)	10/30/84	

> = FURTHER ANALYSIS BEING PERFORMED

12/16/84

PRELIMINARY DETECTED VOLATILES ORGANICS - 10/09/84 WATER SAMPLES
(EXPRESSED AS µg/l OR PPB)

	WELL WATERS			RIVER STATION		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
BENZENE	3,900-3.0	8	8			
CHLOROBENZENE	8,500-14	6	8			
1,2-DICHLOROETHANE	1,700	1	8			
1,1,1-TRICHLOROETHANE	410	1	8			
1,1-DICHLOROETHANE	5	1	8			
CHLOROFORM	230-20	2	8	1	1	1
TRANS-1,2-DICHLOROETHENE	360-33	2	8	2	1	1
ETHYLBENZENE	740-44	3	8			
METHYLENE CHLORIDE	12,000-6	8	8	4	1	1
TETRACHLOROETHENE	5-2	2	8	3	1	1
TOLUENE	1,100-7	6	8			
TRICHLOROETHENE	230-15	2	8	2	1	1
VINYL CHLORIDE	88-28	2	8			
ACETONE	540-29	3	8			
2-BUTANONE	870	1	8			
CARBON DISULFIDE	65-2	2	8			
2-HEXANONE	3,300	1	8	4	1	1
TOTAL XYLENES	960-42	4	8			

12/16/84

PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANICS - 10/09/84 WATER SAMPLES
(EXPRESSED AS µG/L OR PPB)

	WELL WATERS			RIVER STATION		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
2,4,6-TRICHLOROPHENOL	11,000-1,700	3	8			
2-CHLOROPHENOL	4,600- 290	3	8			
2,4-DICHLOROPHENOL	48,000- 160	5	8			
PHENOL	3,700- 36	5	8			
BENZOIC ACID	250	1	8			
4-METHYLPHENOL	66- 39	2	8			
2,4,5-TRICHLOROPHENOL	8,800- 56	5	8			
1,2,4-TRICHLOROBENZENE	200	1	8			
1,2-DICHLOROBENZENE	390- 11	3	8	11	1	1
1,4-DICHLOROBENZENE	590- 110	3	8			
FLUORANTHENE	15	1	8			
NAPHTHALENE	320- 10	4	8			
DI-N-BUTYLPHTHALATE	12	1	8	6	1	1
FLUORENE	10	1	8			
PHENANTHRENE	34- 2	2	8			
PYRENE	19- 3	3	8			
BENZYL ALCOHOL	8,000	1	8			
2-METHYLNAPHTHALENE	260- 7	4	8			

12/16/84

PRELIMINARY DETECTED HERBICIDES, PESTICIDES AND PCBs - 10/09/84 WATER SAMPLES
 (EXPRESSED AS µG/L OR PPB)

	WELL WATERS			RIVER STATION		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
4,4'-DDT	22,000 - 17	4	8	3.5	1	1
4,4'-DDE	54 - 17	2	8			
4,4'-DDD	13,000 - 15	5	8	1.2	1	1
2,4-D	27,000 - 6.9	6	8			
2,4,5-T	5,600 - 470	4	8			
2,4-DB	500	1	8			
DINOSEB (DNBP)	4.2	1	8			

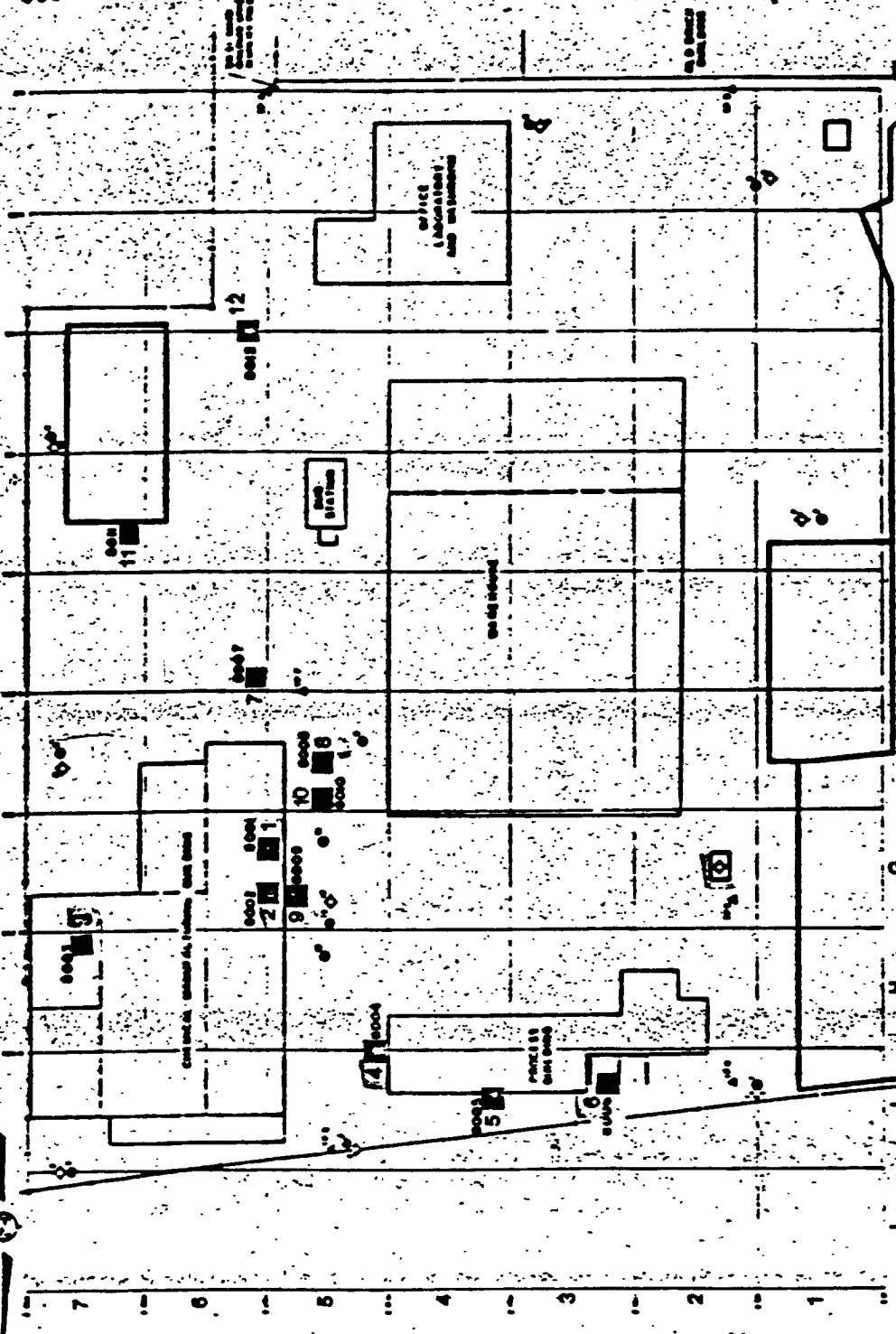
12/16/84

PRELIMINARY DETECTED INORGANIC PARAMETERS - 10/09/84 WATER SAMPLES
 (EXPRESSED AS MG/L OR PPM)

	WELL WATERS			RIVER STATION		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
ANTIMONY	0.151 - 0.003	7	8			
ARSENIC	0.327 - 0.015	8	8	0.008	1	1
BERYLLIUM	0.008 - 0.003	5	8			
CADMIUM	0.029 - 0.002	8	8			
CHROMIUM	0.73 - 0.02	8	8			
COPPER	1.3 - 0.091	8	8	0.018	1	1
LEAD	2.6 - 0.18	8	8			
MERCURY	0.16 - 0.001	8	8			
NICKEL	0.30 - 0.06	8	8	0.10	1	1
SILVER	0.007 - 0.003	4	8			
ZINC	17 - 0.247	8	8	0.011	1	1
TOTAL CYANIDE	0.35 - 0.01	7	8	0.02	1	1
TOTAL PHENOL	102 - 0.03	8	8	0.03	1	1

12/16/84

11/18/84
 Sewer and Sump
 Location and Results



Sewer and Sump Sample Location and Results

Sample ID 2,3,7,8,10
 Conc. [unclear]

Sample ID	Conc.
8001	>1140
8002	>1623
8003	105
8004	>361
8005	>2302
8006	>5530
8008	>1284
8009	790

Sample ID	Conc.
8007	19.5
8010	>3660
8011	>567
8012	>386

S - Out of linear range and/or selected the detector.

12/7/84

see entire set left

12-10-84

SEWER AND SUMP SAMPLING LOCATIONS

PASSAIC RIVER SEDIMENT SAMPLES

● **23 LOCATIONS SAMPLED**

--- 10 LOCATIONS @ 0-12" ONLY

--- 13 LOCATIONS @ 0-12" AND 12-24"

● **36 DIOXIN SAMPLES**

--- 23 SAMPLES @ 0-12"

--- 13 SAMPLES @ 12-24"

● **15 PRIORITY POLLUTANT SAMPLES**

--- 10 SAMPLES @ 0-12"

--- 5 SAMPLES @ 12-24"

12-16-84

DEP\DA0050654

LEGEND OF PASSAIC RIVER SAMPLES

• **DIOXIN SAMPLE @ 0-12"**



DIOXIN SAMPLE @ 0-12" AND 12-24"



DIOXIIN AND PRIORITY POLLUTANTS @ 0-12"



DIOXIN AND PRIORITY POLLUTANTS @ 0-12" AND 12-24"

12-16-84

DEP\DA0050655

RESAMPLE PASSAIC RIVER SEDIMENT

STATION 1-3-0

NOVEMBER 11, 1984

SAMPLE DEPTH	2,3,7,8-TCDD RESULTS (PPB)
0-3'4"	151
3'4"-3'10"	151
3'10"-4'4"	176
5'-5'6"	165
5'6"-6'0	324

12-16-84

DEP\DA0050656

PRELIMINARY DETECTED VOLATILE ORGANICS - PASSAIC RIVER SEDIMENTS
 (EXPRESSED AS µG/KG OR PFB)

	0-12"			12-24"		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
BENZENE	28 - 7	6	10	210	1	5
CHLOROBENZENE	250 - 53	4	10			
METHYLENE CHLORIDE	640 - 73	10	10	680 - 65	5	5
CHLOROMETHANE				140	1	5
TETRACHLOROETHANE				22	1	5
TOLUENE				270 - 52	2	5
ACETONE	1,600 - 220	8	10	830 - 190	5	5
2-BUTANONE	160 - 70	4	10	310 - 69	4	5
CARBON DISULFIDE	31 - 9	3	10	25 - 12	2	5
TOTAL XYLENES	400 - 140	2	10	500	1	5

12/16/84

PRELIMINARY DETECTED BASE/NEUTRAL/ACID ORGANICS - PASSAIC RIVER SEDIMENT
(EXPRESSED AS µG/KG OR PPB)

	0-12"			12-24"		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
2,4-DICHLOROPHENOL				360,000	1	5
2,4,5-TRICHLOROPHENOL				140,000	1	5
ACENAPHTHENE				1,200	1	5
FLUORANTHENE	78,000 - 300	7	10	1,800 - 610	5	5
NAPHTHALENE				710	1	5
BIS(2-ETHYLHEXYL)PHTHALATE	66,000 - 12,000	9	10	37,000 - 11,000	4	5
DI-N-OCTYLPHTHALATE	640 - 230	2	10	860	2	5
BENZO(A)ANTHRACENE	42,000 - 810	2	10	590	1	5
BENZO(A)PYRENE	30,000 - 880	2	10			
BENZO(B)FLUORANTHENE	29,000 - 780	2	10			
CHRYSENE	95,000	1	10	3,400 - 1,200	2	5
ACENAPHTHYLENE	8,300 - 440	2	10	360	1	5
ANTHRACENE	58,000	1	10	1,700 - 330	2	5
FLUORENE	18,000	1	10	1,500	1	5
PHENANTHRENE	110,000 - 440	4	10	3,900 - 430	3	5
PYRENE	100,000 - 260	6	10	3,600 - 520	4	5
2-METHYLNAPHTHALENE	250	1	10	1,600	1	5

12/16/84

PRELIMINARY DETECTED HERBICIDES; PESTICIDES AND PCBs - PASSAIC RIVER SEDIMENTS
(EXPRESSED AS µG/KG OR PPB)

	0-12"			12-24"		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
DIELDRIN				12,000	1	5
4-4'-DDT	4,400 - 430	4	10	1,300	1	5
4,4'-DDE ^A	93 - 23	5	10	75 - 24	3	5
4,4'-DDD ^A	58 - 22	6	10	350 - 44	2	5
PCB-1242	660 - 120	8	10	8,100 - 350	4	5
PCB-1254	300 - 200	2	10	200	1	5
DALAPON	180 - 120	2	10			
MCPP	A	7	10	A	1	5
MCPA	A	8	10	A	2	5
DICHLOROPROP (2,4-DP)	470	1	10			
2,4-D	900 - 130	5	10	490,000	1	5
2,4,5-T	100 - 81	3	10	820,000 - 76	2	5
DINoseb (DNBP)	300 - 180	5	10			

^ABEING INVESTIGATED,
12/16/84

PRELIMINARY DETECTED INORGANIC PARAMETERS - PASSAIC RIVER SEDIMENTS
(EXPRESSED AS µG/G OR PPM)

	0-12"			12-24"		
	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED	CONC. RANGE	# POSITIVE RESULTS	# SAMPLES ANALYZED
ANTIMONY	3.3 - 0.4	10	10	3.4 - 0.2	5	5
ARSENIC	79 - 7.5	10	10	97 - 8.3	5	5
BERYLLIUM	1.1 - 0.39	10	10	0.85- 0.54	5	5
CADMIUM	21.0 - 4.8	10	10	16 - 3	5	5
CHROMIUM	970 - 200	10	10	550 - 260	5	5
COPPER	700 - 220	10	10	720 - 320	5	5
LEAD	760 - 410	10	10	700 - 460	5	5
MERCURY	18.0 - 5.3	10	10	13 - 3	5	5
NICKEL	116 - 51	10	10	114 - 55	5	5
SILVER	11.0 - 4.0	9	10	7.3 - 4.2	4	5
ZINC	2,100 - 700	10	10	1,500 - 850	5	5
TOTAL CYANIDE	4.5 - 0.7	9	10	6.8 - 1.02	5	5
TOTAL PHENOLS	1.5 - 0.02	8	10	298 - 0.4	5	5

12/16/84