



Apparatus Service Department
General Electric Company
1 River Rd. Bldg. 6, 2nd Floor, Schenectady, NY 12345
Bldg. 6, Room 211
Tel. (518) 385 0545

April 20, 1990

Kathleen O'Reilly (6H-CX)
United States Environmental
Protection Agency
1445 Ross Avenue
Dallas, Texas 75202-2733



Subject: Selection of Indicator Compounds
GE Apparatus Service Shop
Albuquerque, New Mexico
Civil Action No. 87-1073-jb

Dear Ms. O'Reilly:

Attached are the analyses results from soil samples obtained from Boring B-1A drilled adjacent to the former dry well. Also attached is a copy of the letter from Law Environmental Inc. which includes a summary of activities, review of analyses, and recommendations for selection of indicator compounds.

General Electric proposes the indicator compounds as recommended by Law Environmental Inc. for the analyses to be performed on the remaining soil samples specified in the RFI Workplan:

Dry well perimeter soil borings SW 846, Method 8080
SW 846, Method 8020

Stained area borings & 40 foot grid samples SW 846, Method 8080
SW 846, Method 8240

Very truly yours,

Barry R. York
Environmental Project Manager

cc: Section Chief, Technical Section (6H-CX)
RCRA Enforcement Branch (6H-C), USEPA REgion VI
Office of Regional Counsel, USEPA Region VI
Boyd Hamilton, New Mexico Environmental Improvement Div.
AD Alcott, Law Environmental, Inc.
PRC Environmental Management, Inc.
JT Harrsen
GR Logan
WP Thornton



LAW ENVIRONMENTAL, INC.

112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144-5599
404-421-3400

April 20, 1990

Mr. Barry York
General Electric Company
One River Road
Building 6, Room 233
Schenectady, New York 12345

Subject: Selection of Indicator Compounds
GE Apparatus Service Shop
Albuquerque, New Mexico
Law Environmental Project No. 55-4342

Dear Mr. York:

In accordance with the approved RFI Work Plan, boring B-1A was drilled approximately 5 feet west of the dry well. On February 22, the boring was started and drilled to a depth of 39 feet. Samples were obtained at 5-foot intervals, beginning at a depth of 12 feet (the approximate base of the dry well). Samples were collected at 12, 22 and 32 feet for Appendix IX analyses. Samples collected at 17, 27 and 37 feet were analyzed for constituents on the Hazardous Substances List. During the night of February 22, a duplicate of the sample collected at 37 feet was analyzed for volatile organic compounds on a rush basis by CEP Laboratories of Santa Fe. Methylene chloride was reported as being detected at a concentration of 9.6 ug/kg. Even though methylene chloride reported at this concentration is typically associated with laboratory activities, GE elected to extend B-1A, to a depth of 49 feet. This additional drilling and sampling was performed on February 23.



The results of the analyses of samples from boring B-1A are presented on the attached Tables. These results were reviewed to develop a selective list of indicator compounds, the detection of which would "signal" the presence of a release from the facility, either from the dry well or to surface soils. In developing a list of chemicals as indicator parameters of a release from the dry well, we also considered the results of the analyses of samples from boring B-1 and we considered the data obtained during previous surface soil sampling and analyses in developing the list of indicator compounds for the planned surface soil sampling program.

Dry Well Release

The constituents detected in the Appendix IX and Hazardous Substances List analyses of samples from boring B-1A are summarized on the attached Tables. A review of the analyses indicate that the constituents released through the dry well were essentially absorbed by the strata within the underlying 10 feet, at or above a depth of 22 feet below ground surface. Organic constituents reported as being detected at depths greater than 22 feet were:

- o **Xylene**

Analysis of the replicate sample obtained at 42 feet indicated the presence of xylene at a concentration of 25 ug/kg. Xylene was not reported as being detected (at a detection limit of 5 ug/kg) in the other portion of the 42-foot sample. Xylene was not reported as being present in the samples obtained from shallower depths of 27, 32 or 37 feet.



o Methylene Chloride

Methylene chloride was reported at a concentration of 5 ug/kg, the method detection limit, in the sample from 47 feet. A review of the attached Table 1 indicates that its detected presence at 47 feet is estimated due to contamination in the blank. Methylene chloride was not detected in any of the other samples obtained from boring B-1A.

o Vinyl Chloride

The detection of vinyl chloride at a reported concentration of 9 ug/kg in the sample from 32 feet is noted as being "questionable - at detection limit of instrument". Vinyl chloride was not reported as being present in any of the other nine samples from boring B-1A or from the samples analyzed from boring B-1 (in 1986).

o Methyl Chloride

Methyl chloride was reported as being present ("questionable - at detection limit of instrument) in the sample from 22 feet. Methyl chloride was not reported as being present in the other analyzed samples.

o Di-n-Octylphthalate

Di-n-Octylphthalate, reported as being present at a concentration of 460 ug/kg in the sample from 32 feet, was the only detected semi-volatile compound reported in a sample obtained from a depth below 17 feet. It was not detected in any of the other samples from boring B-1A analyzed for di-n-octylphthalate (7 samples) or in the previously analyzed samples from boring B-1.



The results of the analyses for metals and cyanide are shown on Table 2. When compared to health-based soil concentrations, also shown on Table 2, the concentrations of metals and cyanide reported in the soil samples from Boring B-1A are below those concentrations considered to represent a health-based concern.

Considering these observations, we recommend the following analyses be performed on samples obtained from the peripheral borings:

- o **Semi-Volatile and PCB Compounds**

Review of the analyses for PCBs and semi-volatile compounds (Table 1) indicates that the migration of all of these compounds (the phthalates, the chlorobenzene and the PCBs) appears to be limited to a few feet from the source. Analyses for one group of compounds should be an indication of the presence of the others. We recommend analyses for PCBs by Method 8080.

- o **Volatile Organic Compounds**

Review of the data on Table 1 suggests that the migration of these compounds also appears to be limited to about 10 feet from the source and that the BTEX constituents, particularly xylene, have the greatest mobility. As such, the BTEX constituents, analyzed by Method 8020, are recommended as the "indicator compound" for volatile organic compounds.

Surface Releases

The intent of the proposed shallow soil study is to explore for evidence of previously

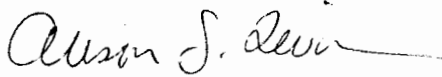
Mr. Barry York
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undetected releases to the soil surface. Earlier studies had indicated the presence of PCBs, usually at low concentrations, and several volatile organic compounds in identified area of surface releases. Therefore, we recommend that the samples obtained in the surface sampling program be analyzed for PCBs (Method 8080) and for volatile organic compounds (Method 8240).

We appreciate the opportunity to continue to provide consulting services to General Electric Company.

Sincerely,


Alison G. Levinson
Project Geologist

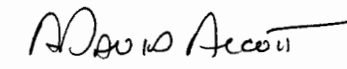

A. David Alcott, P.E.
Principal

TABLE 1

GENERAL ELECTRIC
ALBUQUERQUE, NEW MEXICO
BORING B-1A

VOLATILE COMPOUNDS (ug/kg)	SAMPLES COLLECTED 2/22/90							SAMPLES COLLECTED 2/23/90						
	(Depth in Feet)							TRIP BLANK	SOIL BLANK	(Depth in feet)			TRIP BLANK	SOIL BLANK
	12-14	17-19	22-24	27-29	27-29(R)	32-34	37-39	2/22/90 (ug/l)	2/22/90	42-44	42-44(R)	47-49	2/23/90 (ug/l)	2/23/90
ETHYLBENZENE	450	310	<2	<6	<5	<2	<5	<2	<5	<5	<5	<5	<5	<5
TETRACHLOROETHENE	140	<25	<3	<6	<5	<3	<5	<3	<5	<5	<5	<5	<5	<5
XYLENES (TOTAL)	2000	1600	28	<6	<5	<1	<5	7	<5	<5	25	<5	<5	<5
METHYL CHLORIDE	<30	NA	*8	NA	NA	<6	NA	<6	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	<25	<25	<5	<6	<5	<5	<5	<5	<5	<5	<5	JB 5	<5	<5
VINYL CHLORIDE	<45	<50	<9	<12	<10	*9	<10	<9	<9	<10	<10	<10	<10	<9
CARBON DISULFIDE	<50	<25	<5	<6	<5	<5	<5	5	<5	<5	<5	<5	<5	<5
MEK	<50	NA	<10	NA	NA	<10	NA	13	NA	NA	NA	NA	NA	NA
SULFIDE (mg/kg)	73	NA	82	NA	NA	52	NA	NA	NA	NA	NA	NA	NA	NA
SEMI-VOLATILE COMPOUNDS (ug/kg)														
BIS-(2-ETHYLHEXYL)PHTHALATE	930	420	<144	<410	<340	<144	<350	NA	<330	NA	NA	<360	NA	<330
DI-N-BUTYLPHTHALATE	JB 150	<350	<144	<410	<340	<144	<350	NA	JB 950	NA	NA	<360	NA	<330
POLYCHLORINATED BIPHENYLS	5500	NA	<1800	NA	NA	<1800	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4,5-TETRACHLOROBENZENE	170	NA	<108	NA	NA	<108	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	750	3500	<252	<410	<340	<252	<350	NA	<330	NA	NA	<360	NA	<330
DI-N-OCTYLPHTHALATE	<324	<350	<324	<410	<340	460	<350	NA	<330	NA	NA	<360	NA	<330
1,4-DICHLOROBENZENE	<216	720	<216	<410	<340	<216	<350	NA	<330	NA	NA	<360	NA	<330
(PCB's) AROCHLOR 1242	NA	1300	NA	<100	<80	NA	<80	NA	<80	NA	NA	<85	NA	<80
(PCB's) AROCHLOR 1254	NA	1900	NA	<200	<160	NA	<160	NA	<160	NA	NA	<175	NA	<160

ND - not detected

NA - not analyzed

(R) - replicate sample

JB - estimated data - contaminated blank

* - questionable - at detection limit of instrument

TABLE 2
GENERAL ELECTRIC
ALBUQUERQUE, NEW MEXICO

BORING B-1A
SAMPLE DEPTH (feet)

METALS (mg/kg)	SAMPLES COLLECTED 2-22-90								SAMPLES COLLECTED 2/23/90					* HEALTH BASED SOIL CONCENTRATION (mg/kg)	
	12-14	17-19	22-24	27-29	27-29(R)	32-34	37-39	(2/22/90)	TRIP SOIL (2/22/90)	TRIP BLANK (2/23/90)	TRIP SOIL (2/23/90)	TRIP SOIL (2/23/90)			
ALUMINUM	NA	7250	NA	1880	1950	NA	4580	NA	608	NA	NA	8620	NA	594	---
ANTIMONY	<4.89	<4.9	<5.17	<4.8	<4.6	<4.65	<4.8	NA	<4.6	NA	NA	<5.0	NA	<4.5	280
ARSENIC	<5.10	2.1	<5.40	J 1.4	J 1.5	<4.85	2.2	NA	<0.20	NA	NA	J 1.9	NA	<0.20	700
BARIUM	73.37	119.0	140.99	52.3	58	45.68	55.6	NA	2.7	NA	NA	79.4	NA	2.1	35000
BERYLLIUM	0.64	0.47	.67	<0.21	<0.20	0.2	0.23	NA	<0.20	NA	NA	0.72	NA	<0.20	3500
CADMIUM	5.1	5	4.05	2	1.8	2.22	3	NA	<0.79	NA	NA	1.4	NA	<0.78	350
CALCIUM	NA	8460	NA	5870	6660	NA	2870	NA	18.6	NA	NA	37100	NA	56	---
CHROMIUM	5.1	6.2	7.65	3.1	5.8	3.23	4	NA	2.9	NA	NA	6.2	NA	2.3	3500#
COBALT	5.53	6.5	5.62	1.7	1.7	2.22	2.8	NA	<0.99	NA	NA	4.3	NA	<0.98	---
COPPER	11.48	7.1	8.09	2.4	2.3	2.02	4.7	NA	0.77	NA	NA	6.7	NA	0.57	26000+
IRON	NA	13200	NA	4600	5530	NA	7320	NA	117	NA	NA	10900	NA	120	---
LEAD	15.31	6	22.49	2.7	2.4	<3.44	4.7	NA	2.2	NA	NA	5.7	NA	1.3	1000+
MAGNESIUM	NA	3870	NA	1150	1180	NA	1950	NA	<33.9	NA	NA	3670	NA	<33.5	---
MANGANESE	NA	305	NA	95.8	109	NA	241	NA	1.3	NA	NA	245	NA	1.5	---
MERCURY	<0.1	NA	0.1	NA	NA	<0.1	NA	NA	NA	NA	NA	<0.1	NA	NA	210
NICKEL	J 7.02	J 5.1	11.47	J 3.2	J 3.3	J 3.23	J 4	NA	<1.8	NA	NA	J 6.9	NA	<1.8	14,000
POTASSIUM	NA	2490	NA	419	406	NA	1160	NA	<42.9	NA	NA	1780	NA	<42.4	---
SILVER	<0.43	<0.42	<0.45	<0.41	<0.40	<0.40	<0.42	NA	0.40	NA	NA	0.44	NA	<0.39	2,100
SELENIUM	<11.06	0.28	<11.69	J 0.23	<0.20	<10.51	<0.20	NA	J 0.31	NA	NA	J 0.28	NA	<0.20	1,000+
SODIUM	NA	175	NA	200	174	NA	172	NA	<57.3	NA	NA	158	NA	81.7	2,100+
THALLIUM	<4.86	<0.42	<4.95	<0.41	J 0.6	<4.45	<0.41	NA	<0.39	NA	NA	J 0.53	NA	<0.4	49
TIN	29.99	NA	31.71	NA	NA	<22.24	NA	NA	NA	NA	NA	NA	NA	NA	---
VANADIUM	20.84	22.9	21.36	9.9	11.4	7.88	12.9	NA	1.4	NA	NA	19.3	NA	1.9	14,000
ZINC	41.05	39.5	38	12.7	11.3	14.55	22.4	NA	2.1	NA	NA	31.1	NA	1.7	1,470
OTHERS															
CYANIDE	<1.0	NA	<1.0	NA	NA	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	15,400

- Based on total chromium

* - Calculated from Reference Dose Values: U.S. EPA Interim RFI Guidance Document: Table 8:10 - EPA 530/SW-89-031 - based on adult ingestion

+ - Calculated from Reference Dose Values: U.S. EPA Draft Guidelines for Public Health Risk Assessment