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Y-12

OAK RIDGE Y-12 PLANT

REVIEW OF AVAILABLE INFORMATION
FOR MERCURY AT BUILDING 9201-2

MARTIN MARIETTA

R. R. Turner
Environmental Sciences Division

February 1990

Environmental Management Department
Health, Safety, Environment,
and Accountability Division

Rep. No. 3277
OPERATED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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Issue Date: February 1990

Y/TS-626

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REVIEW OF AVAILABLE INFORMATION
FOR MERCURY AT BUILDING 9201-2

R. R. Turner
Environmental Sciences Division
OAK RIDGE NATIONAL LABORATORY

Prepared for the
Oak Ridge Y-12 Plant
Environmental Management Department
Health, Safety, Environment,
and Accountability Division

Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831
operated by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
Under Contract No. DE-AC05-84OR21400

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OAK RIDGE Y-12 PLANT INFORMATION CONTROL FORM

APL 2/

DOCUMENT DESCRIPTION (Completed By Requesting Division)			
Document No. Y/TS-626	Author's Telephone No. 4-3715	Acct. No. 2366-65-1130	Date of Request 2/22/90

Classified Title: REVIEW OF AVAILABLE INFORMATION FOR MERCURY AT BUILDING 9201-2

Author(s) R. R. Turner

- TYPE: Formal Report Informal Report Progress/Status Report Co-Op Report Thesis/Term Paper
- Oral Presentation (identify meeting, sponsor, location, date): _____
- Journal Article (identify Journal): _____
- Other (Specify): _____

Document will be published in proceedings No YesDocument will be distributed at meeting No YesDocument has patent or invention significance No Yes (Identify) _____Document has been previously released No Yes (Reference) _____

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THANKS!

DIVISION REVIEW AND APPROVAL (Completed By Requesting Division)

TECHNICAL CLASSIFICATION REVIEW (Divisional Classification Representative)

Title(s): UNC Abstract: N/A

DOCUMENT Level: UNC Category: N/A

R. R. Turner Signature *2/22/90* Date

DOCUMENT REQUEST APPROVED (Division or Department)

K. M. Keyser Signature *2-22-90* Date

Signature Date

THE REMAINDER OF THIS FORM TO BE COMPLETED BY THE TECHNICAL INFORMATION OFFICE

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Level <i>U</i>	Category _____
Weapons Data <i>Y-12</i>	Sigma _____
<i>Y-12 Classification Office</i> <i>2-23-90</i> Date	

- Editor *H. L. Holzapple* Date *2/23/90*
- Patent Office *H. L. Holzapple* Date *2/23/90*
- Other _____ Date _____
- Other _____ Date _____

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MERCURY AT BUILDING 9201-2

History of Mercury Use and Spills

Building 9201-2 (Alpha 2) was used in 1950 and 1951 as a process development facility for the Elex process. The building was subsequently used from September 1952 through 1955 as a major Colex development facility, and several Colex pilot plants were built and operated during this time period. Upon shut-down of the Colex test facilities, mercury was transferred to other isotope-separation facilities. The first floor of the building was subsequently converted to office space.

During operations in this building the mercury inventory was 321,753 lbs, of which a total of 186,596 lbs was transferred to other facilities when the test facilities were closed, leaving a balance of 135,157 lbs unaccounted for. Small amounts of mercury have been recovered following closure. For example, on June 7, 1983, 800 lbs of mercury were recovered from an unused pipe in the building. Mercury is known to still exist in the building structure. When the first floor was converted to office space by removing several walls, mercury seeped out of the walls. Very small beads of mercury were still visible in the basement in 1983. On three occasions mercury was spilled in the building and seeped through the floor into the dirt basement. Extensive efforts were made to recover the mercury but without much success. A heavy layer of sulfur was finally added to the top of the dirt basement floor to contain any mercury vapor.

Monitoring of Mercury (Past and Proposed)

*not true
have
1985-59
bldg. in
comcs.
(Mo. 2 vsp.)*

No periodic monitoring activity has been conducted for mercury in air, water or soil at Building 9201-2. Sampling and analysis of environmental media have been strictly of an episodic nature. As part of a plant-wide survey of mercury in drainage water, all pipes on the south side of the building were sampled several times in 1982 and 1983. Results of these surveys are given in Y-12 Reports YSE-44 and Y/TS-90. Results given in YSE-44 include analytical results for other constituents in addition to mercury. Outfalls 48 and 55 on the south side of the building were also sampled several times in the fall of 1986 and analyzed for a wide range of constituents including mercury. Results are given in Y-12 Report Y/SUB/87-57431C/1 (DRAFT) and Appendix A of this summary. Mercury concentrations in the outfalls south of the building have ranged up to 41 ug/L, with the highest concentrations associated with Outfall # 49. In December 1989 analyses of sump water collected as part of a spill of demineralized water in Building 9201-2 revealed concentrations of mercury up to 18 ug/L and low concentrations of several volatile organic compounds (See Appendix B). These results agreed closely with earlier results in both the nature and the concentrations of contaminants in drainage water from this building. The estimated total mercury input to Upper East Fork Poplar Creek from the area of 9201-2 is about 10 g/day, or about 5-10% of all inputs to the creek from the Y-12 Plant.

Three groundwater monitoring wells were installed around the

southeast corner of the building in 1983-84 (See Rothschild et al. 1984) and a number of soil borings for mercury analysis were also completed. Mercury concentrations up to 28 ug/L in groundwater and up to 5000 ug/g in subsurface soil were encountered in this area. A comprehensive survey of mercury and radionuclides in surface soils around Building 9201-2 was conducted in 1986. No mercury concentrations in surface soils in excess of 12 ug/g, or radionuclide activities in excess of 32 pCi/g, were encountered. Appendix C shows the results for mercury.

Although mercury concentrations in air inside Building 9201-2 have been measured periodically by Industrial Hygiene when mercury spills have been detected, no continuous monitoring has taken place. Ambient air outside the building has also not been monitoring continuously or periodically. As shown in Appendix D, the nearest ambient air monitoring stations are located more than 1000 ft away.

not true

As part of the RCRA Facility Investigations of Mercury-Use Areas (See Y-12 Report Y/TS-597) and of Upper East Fork Poplar Creek (See Y-12 Report Y/TS-579) selected environmental media (air and surface water) will be monitored at Building 9201-2. The air sampling plan will include synoptic sampling around the building during hot weather when mercury concentrations are expected to be highest. The main purpose of the air sampling will be to detect and trace significant sources of mercury in fugitive emissions from buildings or soil. No soil sampling will be conducted unless the air data indicate a significant source in the area. The surface water sampling plan includes a comprehensive investigation of losses of mercury and other hazardous constituents from Building 9201-2. Appendix E shows the locations of surface water sampling sites. Groundwater will be investigated in the vicinity of Building 9201-2 as part of the Y-12 Comprehensive Groundwater Monitoring Plan. Phase I of this plan includes the installation of new wells near 9201-2. Any future remedial action at Building 9201-2 should be driven by the results of these investigations.

REFERENCES

Characterization of Y-12 Storm Drain System and Effluents Intersecting into East Fork Poplar Creek, 1983. YSE-44

Turner, R. R., G. E. Kamp, M. A. Bogle, J. Switek, and R. McElhaney June 1985. Sources and Discharges of Mercury in Drainage Waters at the Oak Ridge Y-12 Plant. Y/TS-90

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Perkins, A. B. December 1989. RCRA Facility Investigation Plan Mercury-Use Areas (S-127) Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. Y/TS-597

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APPENDIX A

RESULTS OF CAMP, DRESSER AND MCKEE SURVEY OF WATER QUALITY

IN OUTFALLS 48 AND 55

OUTFALL 48

STATION 7

PARAMETERS	UNITS	10-SEP-86	16-SEP-86	19-SEP-86	24-SEP-86	1-OCT-86
1,1,1-TRICHLOROETHANE	ug/l	1	ND	ND	ND	ND
1,2-DICHLOROETHANE	ug/l	1	ND	ND	ND	ND
4-METHYL-2-PENTANONE	ug/l	ND	ND	ND	ND	4
ACETONITRILE	ug/l	5	ND	ND	ND	ND
ALKYL HYDROCARBON	ug/l	ND	430	ND	ND	ND
ALPHA ACTIVITY	pcv/l	15	ND	2	ND	ND
ALUMINUM	ug/l	0.062	0.02	0.034	0.06	0.12
BARIUM	ug/l	0.036	0.026	0.025	0.026	0.027
BENZENE	ug/l	1	ND	ND	ND	ND
BETA ACTIVITY	pcv/l	10	2	ND	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l	ND	19	1	2	ND
BORON	ug/l	0.032	0.01	0.011	0.037	0.013
BROMODICHLOROMETHANE	ug/l	ND	6	11	16	16
BROMOFORM	ug/l	4	ND	1	2	1
CALCIUM	ug/l	40	38	38	36	36
CARBON DISULFIDE	ug/l	ND	ND	1	ND	ND
CARBON TETRACHLORIDE	ug/l	ND	ND	ND	ND	ND
CHLORIDE	ug/l	12	8.2	8.3	8.8	9.2
CHLORO-CYCLOHEXANOL	ug/l	ND	ND	ND	40	700
CHLOROCYCLOHEXANONE	ug/l	ND	ND	ND	ND	62
CHLOROCYCLOHEXENE	ug/l	ND	ND	30	ND	60
COD	ug/l	ND	ND	7	ND	ND
CONDUCTIVITY	uhos/cs	343	296	273	279	290
COPPER	ug/l	0.028	ND	ND	ND	ND
CYCLOHEXANONE	ug/l	ND	ND	ND	ND	2
DI-N-BUTYL PHTHALATE	ug/l	ND	1	ND	ND	ND
DI(BROMOCHLOROMETHANE)	ug/l	2	ND	4	9	6
DICHLOROCYCLOXANE	ug/l	ND	100	150	80	311
DISSOLVED SOLIDS	ug/l	98	ND	168	260	124
ETHYLBENZENE	ug/l	1	ND	ND	ND	ND
IRON	ug/l	0.26	0.012	0.019	0.0077	0.035
LEAD	ug/l	0.008	0.005	ND	ND	ND
LITHIUM	ug/l	ND	0.0042	0.0046	0.0041	0.0052
MAGNESIUM	ug/l	10	10	10	9.7	11
MANGANESE	ug/l	0.14	0.0014	0.0019	0.0024	0.0031
MERCURY	ug/l	0.0002	0.0003	0.0002	0.0003	0.0004
MOLYBDENUM	ug/l	0.082	0.039	0.033	0.067	0.027
NIOBIUM	ug/l	ND	ND	ND	ND	0.014
NITRATE	ug/l	5.1	3.2	2.7	2.9	2.6
OIL AND GREASE	ug/l	ND	3	ND	ND	5
pH		8	7.7	8	8	7.8
PHOSPHORUS	ug/l	ND	ND	0.25	ND	0.2
POLYMERIC ETHER	ug/l	ND	ND	ND	350	ND
POTASSIUM	ug/l	1.8	1.9	1.8	1.7	1.9
SILICON	ug/l	2.4	2.2	2.1	2.1	2.1
SODIUM	ug/l	7.7	7	7.2	6.5	7.3
STRONTIUM	ug/l	0.12	0.11	0.11	0.11	0.11
SULFATE	ug/l	28	23	24	24	23
SUSPENDED SOLIDS	ug/l	5	13	4	ND	ND
TETRACHLOROETHENE	ug/l	1	ND	ND	ND	ND
TXN	ug/l	0.42	0.9	ND	0.7	0.3
TOC	ug/l	28	26	35	18	41
TOT RES CHLORINE	ug/l	2.5	1	1.2	0.5	ND
TOTAL PHOSPHATE	ug/l	0.9	1.1	1.4	0.9	1.3
TRANS-1,2-DICHLOROETHENE	ug/l	ND	ND	ND	1	ND
TRIBUTYL PHOSPHATE	ug/l	ND	9	ND	ND	ND
TRICHLOROETHENE	ug/l	ND	ND	ND	1	ND
UNKNOWN	ug/l	ND	38	620	70	40
URANIUM	ug/ml	0.007	0.003	0.003	0.008	0.011
ZINC	ug/l	0.095	0.1	0.14	0.07	0.12

OUTFALL 55

STATION 8

PARAMETERS	UNITS	10-SEP-86	16-SEP-86	19-SEP-86	24-SEP-86	1-OCT-86
1,1,1-TRICHLOROETHANE	ug/l	1	ND	ND	ND	ND
ALKYL HYDROCARBON	ug/l	ND	ND	ND	ND	303
ALPHA ACTIVITY	pCi/l	4	ND	2	ND	4
ALUMINUM	ug/l	0.036	ND	ND	0.044	0.095
BARIUM	ug/l	0.028	0.026	0.025	0.025	0.026
BERYLLIUM	ug/l	ND	ND	0.0004	0.0004	ND
BETA ACTIVITY	pCi/l	4	4	4	ND	ND
BIS(2-ETHYLHEXYL)PHTHALATE	ug/l	ND	9	ND	ND	ND
BORON	ug/l	0.038	0.011	0.013	0.032	0.012
BROMO/CHLORO CYCLOHEXENE	ug/l	ND	ND	ND	ND	45
BROMODICHLOROMETHANE	ug/l	7	ND	8	ND	10
BUTYL CELLOSOLVE	ug/l	ND	ND	ND	ND	0.9
CADMIUM	ug/l	0.0034	ND	ND	ND	ND
CALCIUM	ug/l	38	37	37	33	33
CHLORIDE	ug/l	9	7.5	8.4	8.5	9
CHLOROCYCLOHEXANOL	ug/l	300	ND	ND	ND	ND
CHLOROCYCLOHEXENE	ug/l	ND	ND	ND	40	ND
CONDUCTIVITY	ushos/cm	319	291	274	273	280
COPPER	ug/l	0.0025	0.0044	ND	ND	ND
DI-N-BUTYL PHTHALATE	ug/l	ND	ND	1	ND	ND
DIBROMOCHLOROMETHANE	ug/l	3	ND	2	ND	2
DICHLOROCYCLOHEXENE	ug/l	ND	43	110	210	193
DISSOLVED SOLIDS	ug/l	62	240	186	236	152
FREON 113	ug/l	1	ND	ND	ND	ND
IRON	ug/l	0.073	0.016	0.0049	0.0047	0.02
LITHIUM	ug/l	0.0047	0.0041	0.004	ND	0.0042
MAGNESIUM	ug/l	9.4	10	10	9.5	11
MANGANESE	ug/l	0.0053	0.0025	0.0014	0.0024	0.003
MERCURY	ug/l	0.0003	0.0018	0.0019	0.0019	0.002
NIOBIUM	ug/l	ND	ND	ND	ND	0.014
NITRATE	ug/l	4.2	2.7	2.6	2.7	2.5
OIL AND GREASE	ug/l	ND	ND	ND	ND	3
pH		7.8	7.6	8	7.9	7.9
PHOSPHORUS	ug/l	ND	ND	0.2	ND	0.21
POTASSIUM	ug/l	1.6	1.7	1.6	1.2	1.9
SILICON	ug/l	2.2	2.2	2.1	2	2.1
SODIUM	ug/l	6.5	6.9	7.1	6.3	7.2
STRONTIUM	ug/l	0.12	0.11	0.11	0.1	0.11
SULFATE	ug/l	24.2	22.2	24	23	23
SUSPENDED SOLIDS	ug/l	4	3	8	ND	ND
TETRACHLOROETHENE	ug/l	14	ND	ND	ND	ND
TKN	ug/l	0.2	0.2	0.2	0.7	0.2
TOC	ug/l	26	26	33	24	40
TOLUENE	ug/l	1	ND	1	ND	ND
TOT RES CHLORINE	ug/l	6	1	1.2	0.6	ND
TOTAL PHOSPHATE	ug/l	1.1	1.3	1.4	0.7	1
TOTAL XYLENES	ug/l	1	ND	1	ND	ND
TRANS-1,2-DICHLOROETHENE	ug/l	2	ND	ND	ND	ND
TRICHLOROETHENE	ug/l	2	ND	ND	ND	ND
UNKNOWN	ug/l	240	39	540	570	41
URANIUM	ug/ml	0.006	0.003	0.004	0.008	0.006
ZINC	ug/l	0.11	0.11	0.14	0.075	0.13
ZIRCONIUM	ug/l	ND	ND	ND	0.0073	ND

APPENDIX B

FIELD NOTES AND ANALYTICAL RESULTS FOR DECEMBER 1989

INVESTIGATION OF DEMINERALIZED WATER SPILL IN 9201-2

I N T E R O F F I C E M E M O R A N D U M

Date: 13-Dec-1989 14:34 EDT
From: Barnett, Elliott J.
BARNETTEJ AT A1 AT OCB1
Dept: Environmental Management
Tel No: 4-9595

TO: SEE BELOW

Subject: Spill of Demineralized Water in 9201-2 Basement

At approximately 2:00 p.m. on 12/11/89 a demineralized water line in the basement of building 9201-2 was discovered broken. The Utilities Division was notified and the leaking line was valved off at approximately 2:10 p.m. Water from the broken line flowed across the ground in the basement and into a level-actuated sump pump which in turn pumped the water to the East Fork Poplar Creek (EFPC) through Outfall 55. An estimated 250 gallons were released to the EFPC. The DOE Y-12 Site Office and the Environmental Protection Division were notified by members of the Environmental Management Department. Water samples were taken at the basement sump, Outfall 55, and at NPDES Monitoring Station 17 due to the concern that the water may have flowed over an area contaminated with mercury. Preliminary sample results indicated a mercury concentration of 28 ppb in the sump water, 0.6 ppb in the water discharged through Outfall 55, and 1.1 ppb at Station 17. Samples taken from Outfall 55 in the past have indicated mercury concentrations around 2.4 ppb. Therefore, no significant environmental impact is believed to have resulted from this release. The spill was determined to be loggable but not a reportable quantity by the Y-12 Plant Environmental Coordinator. Any questions can be directed to Elliott Barnett (BARNETTEJ, 4-9595).

SPILL RESPONSE 9201-2

12/4/89 (MONDAY)

0
0
0
0
0

PT# 6050

0
0
0

CHARGE# S2211401

JEFF MURPHY ASKED ME TO ASSIST HIM IN RESPONDING TO A 6" DISTILLED WATER LINE LEAKING IN THE BASEMENT OF 9201-2 (FUSION ENERGY). THE WATER WAS RUNNING INTO A SUMP AREA AND BEING PUMPED OUT INTO THE CREEK THRU, WHAT WE LATER FOUND OUT WAS OUTFALL #55.

FIELD READINGS: PH: 7.7 TEMP: 17.6°F TIME: 1300 1500
EMB# 069

GRABS: OK, 024, 139, 142 Req# A30085 coc# 7571 time: 1500

A SECOND PAIR OF GRABS WERE TAKEN: ONE AT OUTFALL #55 AND THE OTHER AT STATION #17. I WAITED AT OUTFALL #55 UNTIL THE FLOW SUDDENLY INCREASED FROM @20gpm TO @35gpm THIS WAS AN INDICATION THE SUMP PUMP HAD REACHED A HIGH LEVEL AND THE PUMP WAS DISCHARGING.

GRABS: Req# A30086 coc# 7582 time: indicated

<u>SUBSAMPLE #</u>	<u>LOCATION</u>	<u>TIME:</u>
001	OUTFALL # 55	1625
002	STA # 17	1800

Jerry Dillen

PIN 6050

9201-2 (FUSION ENERGY) Sumps 12/12/89 (TUESDAY)

DAVE REED, MICK WEST, ELLIOTT BARDETT AND MYSELF
MET MIKE FINGER AT 9201-2 (FUSION ENERGY) AT 1400
IN REGARDS TO SOME SUMPS AND UNDERGROUND SPRINGS
IN THE BASEMENT OF THE BUILDING. THERE IS POSSIBLY
MERCURY CONTAMINATED SOIL THROUGHOUT THAT LEVEL
AND THERE WAS A CONCERN FOR IT GETTING INTO THE
CREEK THRU THE SUMPS AND STREAMS.

TWO SUMPS WERE SAMPLED SIDE BY SIDE ON THE
SOUTH/EAST SIDE OF THE BASEMENT. THE NORTH SUMP (#1)
HAD CLEAR WATER IN IT AND THE SOUTH SUMP (#2) HAD A
FILM ON TOP AND THE REST WAS SLIGHTLY DISCOLORED WITH
PARTICLES FLOATING.

SUMP #1

FIELD READINGS: PH: 7.7 TEMP: 14.6⁴⁵ °C TIME: 1530

EMG #069

GRABS: 024, 016, 102, 105, 115, 139, 142, 221, 362, 444, 454, 455
REQ# A30087 coc# 7582 TIME: 1530 SUB-SAMPLE # 001

SUMP #2

FIELD READINGS: PH: 7.7 TEMP: 14.9 °C TIME: 1530

EMG #069

GRABS: 016, 024, 102, 105, 115, 139, 142, 221, 362, 444, 454, 455,
REQ# A30087 coc# 7582 TIME: 1530 SUB-SAMPLE # 002

TRIP BLANK: REQ# A30088 coc# 7582 TIME: 1400 IN 9704-4 LAB

CHARGE# S2211401 FOR SUMP GRABS
CHARGE# S2211601 FOR TRIP BLANKS.

JANET STAFF JILLION

ENDS001 Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30087

Env Sample Code: 8601

Sample desc: H20

Sample loc: MULTIPLE 1990 JAN -9 PM 3:02

Requester name: HANZELKA

Date: 12-12-89

Addr: 9115 ,8219,0123 K

Time: 15:30

Phone: 4-1599

Sampled by: 13718/14224

Date received: 12-13-89

Reported: 01-04-90

Handling: NEED BY 12-22-89

Charge code: S2211401

Remarks:

Approved by: SLAGLE /DHB

DC	CAS NUMBER	DETERMINATION	BASIS/PREP	/PHASE	ANSWER	UNITS	DATE	TIME	METHOD	ANA
Sample: 001 Location: SAMPLE#1										
102	12587-46-1	Alpha Activity	As Rec/Total	/Complete	4.4	+/-0.9	pCi/l	12/28/89	13:00	***** 039
105	12587-47-2	Beta Activity	As Rec/Total	/Complete	12	+/-2	pCi/l	12/28/89	13:00	***** 039
024	7439-97-6	Mercury	As Rec/Total	/Complete	0.018		mg/l	12/13/89	13:00	245.1 103
444		Oil and Grease	As Rec/Total	/Complete	<2		mg/l	12/15/89	15:00	413.1 013
454		Residue, Filterable (TDS)	As Rec/Total	/Complete	230	+/-50	mg/l	12/14/89	15:00	160.1 113
455		Residue, Non-Filterable (TSS)	As Rec/Total	/Complete	<5		mg/l	12/14/89	10:30	160.2 113
142	7440-61-1	Uranium, Total	As Rec/Total	/Complete	0.002		mg/l	12/20/89	13:00	***** 102
139		Uranium-235 Percent	As Rec/Total	/Complete	0.77		%	12/20/89	13:00	***** 102
Dissolved Hg 0.015 mg/l										
ICP Sweep										
001	7429-90-5	Aluminum	As Rec/Total	/Complete	0.03		mg/l	12/19/89	09:44	200.7 099
003	7440-38-2	Arsenic	As Rec/Total	/Complete	<0.04		mg/l	12/19/89	09:44	200.7 099
004	7440-39-3	Barium	As Rec/Total	/Complete	0.0555		mg/l	12/19/89	09:44	200.7 099
006	7440-41-7	Beryllium	As Rec/Total	/Complete	<0.0001		mg/l	12/19/89	09:44	200.7 099
007	7440-42-8	Boron	As Rec/Total	/Complete	0.053		mg/l	12/19/89	09:44	200.7 099
008	7440-43-9	Cadmium	As Rec/Total	/Complete	<0.003		mg/l	12/19/89	09:44	200.7 099
009	7440-70-2	Calcium	As Rec/Total	/Complete	58.5		mg/l	12/19/89	09:44	200.7 099
010	7440-45-1	Cerium	As Rec/Total	/Complete	<0.02		mg/l	12/19/89	09:44	200.7 099
011	7440-47-3	Chromium	As Rec/Total	/Complete	<0.006		mg/l	12/19/89	09:44	200.7 099
012	7440-48-4	Cobalt	As Rec/Total	/Complete	0.003		mg/l	12/19/89	09:44	200.7 099
013	7440-50-8	Copper	As Rec/Total	/Complete	0.004		mg/l	12/19/89	09:44	200.7 099
014	7440-55-3	Gallium	As Rec/Total	/Complete	<0.01		mg/l	12/19/89	09:44	200.7 099
018	7439-89-6	Iron	As Rec/Total	/Complete	0.03		mg/l	12/19/89	09:44	200.7 099
019	7439-91-0	Lanthanum	As Rec/Total	/Complete	<0.003		mg/l	12/19/89	09:44	200.7 099
020	7439-92-1	Lead	As Rec/Total	/Complete	<0.02		mg/l	12/19/89	09:44	200.7 099

ENDS001

Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30087

PAGE: 2

DC	CAS NUMBER	DETERMINATION	BASIS/PREP	/PHASE	ANSWER	UNITS	DATE	TIME	METHOD	ANA
021	7439-93-2	Lithium	As Rec/Total	/Complete	0.811	mg/l	12/19/89	09:44	200.7	099
022	7439-95-4	Magnesium	As Rec/Total	/Complete	x 10	mg/l	12/19/89	09:44	200.7	099
023	7439-96-5	Manganese	As Rec/Total	/Complete	0.082	mg/l	12/19/89	09:44	200.7	099
025	7439-98-7	Molybdenum	As Rec/Total	/Complete	<0.006	mg/l	12/19/89	09:44	200.7	099
026	7440-02-0	Nickel	As Rec/Total	/Complete	<0.007	mg/l	12/19/89	09:44	200.7	099
027	7440-03-1	Niobium	As Rec/Total	/Complete	<0.01	mg/l	12/19/89	09:44	200.7	099
030	7723-14-0	Phosphorus	As Rec/Total	/Complete	0.18	mg/l	12/19/89	09:44	200.7	099
032	7440-09-7	Potassium	As Rec/Total	/Complete	3.9	mg/l	12/19/89	09:44	200.7	099
035	7440-20-2	Scandium	As Rec/Total	/Complete	<0.0004	mg/l	12/19/89	09:44	200.7	099
038	7440-22-4	Silver	As Rec/Total	/Complete	<0.004	mg/l	12/19/89	09:44	200.7	099
039	7440-23-5	Sodium	As Rec/Total	/Complete	13.5	mg/l	12/19/89	09:44	200.7	099
040	7440-24-6	Strontium	As Rec/Total	/Complete	0.168	mg/l	12/19/89	09:44	200.7	099
043	7440-29-1	Thorium	As Rec/Total	/Complete	<0.01	mg/l	12/19/89	09:44	200.7	099
045	7440-32-6	Titanium	As Rec/Total	/Complete	<0.002	mg/l	12/19/89	09:44	200.7	099
046	7440-62-2	Vanadium	As Rec/Total	/Complete	<0.004	mg/l	12/19/89	09:44	200.7	099
048	7440-66-6	Zinc	As Rec/Total	/Complete	0.030	mg/l	12/19/89	09:44	200.7	099
049	7440-67-7	Zirconium	As Rec/Total	/Complete	<0.002	mg/l	12/19/89	09:44	200.7	099

Gamma Activity

152	Gamma, Total	As Rec/Total	/Complete	61	+/-10	pCi/l	12/19/89	13:00	*****	039
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PCBs

233	PCB, Total	As Rec/Total	/Complete	<0.0005		mg/l	12/14/89	09:40	608	114
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Volatile Organics

580	71-55-6	1,1,1-Trichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
582	79-34-5	1,1,2,2-Tetrachloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
581	79-00-5	1,1,2-Trichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
578	75-34-3	1,1-Dichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
579	75-35-4	1,1-Dichloroethene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
584	107-06-2	1,2-Dichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
585	78-87-5	1,2-Dichloropropane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
610	110-75-8	2-Chloroethylvinyl ether	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
509	71-43-2	Benzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
519	75-27-4	Bromodichloromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
520	75-25-2	Bromoform	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
565	74-83-9	Bromomethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
524	56-23-5	Carbon tetrachloride	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
525	108-90-7	Chlorobenzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086

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Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30087

PAGE: 3

DC	CAS NUMBER	DETERMINATION	BASIS/PREP	/PHASE	ANSWER	UNITS	DATE	TIME	METHOD	ANA
	527 75-00-3	Chloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	528 67-66-3	Chloroform	As Rec/Total	/Complete	<10	ug/l	12/13/89	14:19	624	086
	566 74-87-3	Chloromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	535 124-48-1	Dibromochloromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	546 100-41-4	ETHylbenzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	571 75-09-2	Methylene chloride	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	596 127-18-4	Tetrachloroethene	As Rec/Total	/Complete	160	+/-20	ug/l	12/13/89	14:19	624
	600 108-88-3	Toluene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	607 79-01-6	Trichloroethene	As Rec/Total	/Complete	14	+/-1	ug/l	12/13/89	14:19	624
	608 75-69-4	Trichlorofluoromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	622 75-01-4	Vinyl chloride	As Rec/Total	/Complete	24	+/-2	ug/l	12/13/89	14:19	624
	530 10061-01-5	cis-1,3-Dichloropropene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	604 156-60-5	trans-1,2-Dichloroethene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086
	605 10061-02-6	trans-1,3-Dichloropropene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:19	624	086

Sample: 002 Location: SAMPLE#2

102	12587-46-1	Alpha Activity	As Rec/Total	/Complete	5.9	+/-1	pCi/l	12/28/89	13:00	*****	039
105	12587-47-2	Beta Activity	As Rec/Total	/Complete	18	+/-3	pCi/l	12/28/89	13:00	*****	039
024	7439-97-6	Mercury	As Rec/Total	/Complete	0.023		mg/l	12/13/89	13:00	245.1	103
444		Oil and Grease	As Rec/Total	/Complete	<2		mg/l	12/15/89	15:00	413.1	013
454		Residue, Filterable (TDS)	As Rec/Total	/Complete	185	+/-40	mg/l	12/14/89	15:00	160.1	113
455		Residue, Non-Filterable (TSS)	As Rec/Total	/Complete	9	+/-2	mg/l	12/14/89	15:00	160.2	113
142	7440-61-1	Uranium, Total	As Rec/Total	/Complete	0.001		mg/l	12/20/89	13:00	*****	102
139		Uranium-235 Percent	As Rec/Total	/Complete	1.70		X	12/20/89	13:00	*****	102
	Dissolved Hg	0.012 mg/l									

ICP Sweep

001	7429-90-5	Aluminum	As Rec/Total	/Complete	0.28		mg/l	12/19/89	09:44	200.7	099
003	7440-38-2	Arsenic	As Rec/Total	/Complete	<0.04		mg/l	12/19/89	09:44	200.7	099
004	7440-39-3	Barium	As Rec/Total	/Complete	0.0521		mg/l	12/19/89	09:44	200.7	099
006	7440-41-7	Beryllium	As Rec/Total	/Complete	<0.0001		mg/l	12/19/89	09:44	200.7	099
007	7440-42-8	Boron	As Rec/Total	/Complete	0.029		mg/l	12/19/89	09:44	200.7	099
008	7440-43-9	Cadmium	As Rec/Total	/Complete	<0.003		mg/l	12/19/89	09:44	200.7	099
009	7440-70-2	Calcium	As Rec/Total	/Complete	47.4		mg/l	12/19/89	09:44	200.7	099
010	7440-45-1	Cerium	As Rec/Total	/Complete	<0.02		mg/l	12/19/89	09:44	200.7	099
011	7440-47-3	Chromium	As Rec/Total	/Complete	<0.006		mg/l	12/19/89	09:44	200.7	099
012	7440-48-4	Cobalt	As Rec/Total	/Complete	0.003		mg/l	12/19/89	09:44	200.7	099
013	7440-50-8	Copper	As Rec/Total	/Complete	0.132		mg/l	12/19/89	09:44	200.7	099
014	7440-55-3	Gallium	As Rec/Total	/Complete	<0.01		mg/l	12/19/89	09:44	200.7	099
018	7439-89-6	Iron	As Rec/Total	/Complete	1.38		mg/l	12/19/89	09:44	200.7	099
019	7439-91-0	Lanthanum	As Rec/Total	/Complete	<0.003		mg/l	12/19/89	09:44	200.7	099
020	7439-92-1	Lead	As Rec/Total	/Complete	<0.02		mg/l	12/19/89	09:44	200.7	099

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Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30087

PAGE: 4

DC	CAS NUMBER	DETERMINATION	BASIS/PREP	/PHASE	ANSWER	UNITS	DATE	TIME	METHOD	ANA
021	7439-93-2	Lithium	As Rec/Total	/Complete	0.362	mg/l	12/19/89	09:44	200.7	099
022	7439-95-4	Magnesium	As Rec/Total	/Complete	10.5	mg/l	12/19/89	09:44	200.7	099
023	7439-96-5	Manganese	As Rec/Total	/Complete	0.533	mg/l	12/19/89	09:44	200.7	099
025	7439-98-7	Molybdenum	As Rec/Total	/Complete	<0.006	mg/l	12/19/89	09:44	200.7	099
026	7440-02-0	Nickel	As Rec/Total	/Complete	<0.007	mg/l	12/19/89	09:44	200.7	099
027	7440-03-1	Niobium	As Rec/Total	/Complete	<0.01	mg/l	12/19/89	09:44	200.7	099
030	7723-14-0	Phosphorus	As Rec/Total	/Complete	0.50	mg/l	12/19/89	09:44	200.7	099
032	7440-09-7	Potassium	As Rec/Total	/Complete	2.7	mg/l	12/19/89	09:44	200.7	099
035	7440-20-2	Scandium	As Rec/Total	/Complete	<0.0004	mg/l	12/19/89	09:44	200.7	099
038	7440-22-4	Silver	As Rec/Total	/Complete	<0.004	mg/l	12/19/89	09:44	200.7	099
039	7440-23-5	Sodium	As Rec/Total	/Complete	9.81	mg/l	12/19/89	09:44	200.7	099
040	7440-24-6	Strontium	As Rec/Total	/Complete	0.135	mg/l	12/19/89	09:44	200.7	099
043	7440-29-1	Thorium	As Rec/Total	/Complete	<0.01	mg/l	12/19/89	09:44	200.7	099
045	7440-32-6	Titanium	As Rec/Total	/Complete	<0.002	mg/l	12/19/89	09:44	200.7	099
046	7440-62-2	Vanadium	As Rec/Total	/Complete	<0.004	mg/l	12/19/89	09:44	200.7	099
048	7440-66-6	Zinc	As Rec/Total	/Complete	0.425	mg/l	12/19/89	09:44	200.7	099
049	7440-67-7	Zirconium	As Rec/Total	/Complete	0.003	mg/l	12/19/89	09:44	200.7	099

Gamma Activity

152	Gamma, Total	As Rec/Total	/Complete	110	+/-20	pCi/l	12/19/89	13:00	*****	039
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PCBs

233	PCB, Total	As Rec/Total	/Complete	<0.0005		mg/l	12/14/89	10:00	608	114
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Volatile Organics

580	71-55-6	1,1,1-Trichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
582	79-34-5	1,1,2,2-Tetrachloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
581	79-00-5	1,1,2-Trichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
578	75-34-3	1,1-Dichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
579	75-35-4	1,1-Dichloroethene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
584	107-06-2	1,2-Dichloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
585	78-87-5	1,2-Dichloropropane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
610	110-75-8	2-Chloroethylvinyl ether	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
509	71-43-2	Benzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
519	75-27-4	Bromodichloromethane	As Rec/Total	/Complete	<10	ug/l	12/13/89	14:47	624	086
520	75-25-2	Bromoform	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
565	74-83-9	Bromomethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
524	56-23-5	Carbon tetrachloride	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
525	108-90-7	Chlorobenzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086

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Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30087

PAGE: 5

DC	CAS NUMBER	DETERMINATION	BASIS/PREP	/PHASE	ANSWER	UNITS	DATE	TIME	METHOD	ANA
	527 75-00-3	Chloroethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	086
	528 67-66-3	Chloroform	As Rec/Total	/Complete	12	+/-1	ug/l	12/13/89	14:47	624
	566 74-87-3	Chloromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	535 124-48-1	Dibromochloromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	546 100-41-4	ETHylbenzene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	571 75-09-2	Methylene chloride	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	596 127-18-4	Tetrachloroethene	As Rec/Total	/Complete	58	+/-6	ug/l	12/13/89	14:47	624
	600 108-88-3	Toluene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	607 79-01-6	Trichloroethene	As Rec/Total	/Complete	<10	ug/l	12/13/89	14:47	624	
	508 75-69-4	Trichlorofluoromethane	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	522 75-01-4	Vinyl chloride	As Rec/Total	/Complete	<10	ug/l	12/13/89	14:47	624	
	530 10061-01-5	cis-1,3-Dichloropropene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	504 156-60-5	trans-1,2-Dichloroethene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	
	505 10061-02-6	trans-1,3-Dichloropropene	As Rec/Total	/Complete	10U	ug/l	12/13/89	14:47	624	

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Y-12 PLANT LABORATORY  
GC/MS ANALYSIS RESULTS

VOLATILE ORGANICS - METHOD 624(10-26-84) \_\_\_\_\_

SAMPLING DATE: 12/12/89  
ANALYSIS DATE: 12/13/89  
ANALYZED BY: 86

REQUISITION: A30087-001  
REQUESTER: KGH  
APPROVED BY: *PJ*

COMMENTS:

| DET. CODE | COMPOUND                         | CONC., UG/L |
|-----------|----------------------------------|-------------|
| 509       | BENZENE.....                     | 10 U        |
| 519       | BROMODICHLOROMETHANE.....        | 10 U        |
| 520       | BROMOFORM.....                   | 10 U        |
| 524       | CARBON TETRACHLORIDE.....        | 10 U        |
| 525       | CHLOROBENZENE.....               | 10 U        |
| 527       | CHLOROETHANE.....                | 10 U        |
| 610       | 2-CHLOROETHYL VINYL ETHER.....   | 10 U        |
| 528       | CHLOROFORM.....                  | <10         |
| 535       | DIBROMOCHLOROMETHANE.....        | 10 U        |
| 578       | 1,1-DICHLOROETHANE.....          | 10 U        |
| 584       | 1,2-DICHLOROETHANE.....          | 10 U        |
| 579       | 1,1-DICHLOROETHYLENE.....        | 10 U        |
| 604       | TRANS-1,2-DICHLOROETHYLENE.....  | 10 U        |
| 585       | 1,2-DICHLOROPROPANE.....         | 10 U        |
| 530       | CIS-1,3-DICHLOROPROPYLENE.....   | 10 U        |
| 605       | TRANS-1,3-DICHLOROPROPYLENE..... | 10 U        |
| 546       | ETHYL BENZENE.....               | 10 U        |
| 565       | METHYL BROMIDE.....              | 10 U        |
| 566       | METHYL CHLORIDE.....             | 10 U        |
| 571       | METHYLENE CHLORIDE.....          | 10 U        |
| 582       | 1,1,2,2-TETRACHLOROETHANE.....   | 10 U        |
| 596       | TETRACHLOROETHYLENE.....         | 160         |
| 600       | TOLUENE.....                     | 10 U        |
| 580       | 1,1,1-TRICHLOROETHANE.....       | 10 U        |
| 581       | 1,1,2-TRICHLOROETHANE.....       | 10 U        |
| 607       | TRICHLOROETHYLENE.....           | 14          |
| 608       | TRICHLOROFLUOROMETHANE.....      | 10 U        |
| 622       | VINYL CHLORIDE.....              | 24          |

ALSO PRESENT:

|       |                                 |       |
|-------|---------------------------------|-------|
| ----- | <i>Cis-1,2-Dichloroethylene</i> | 160   |
| ----- |                                 | ----- |
| ----- |                                 | ----- |
| ----- |                                 | ----- |
| ----- |                                 | ----- |

Y-12 PLANT LABORATORY  
GC/MS ANALYSIS RESULTS

VOLATILE ORGANICS - METHOD 624 (10-26-84)

SAMPLING DATE: 12/12/89  
ANALYSIS DATE: 12/13/89  
ANALYZED BY: 86

REQUISITION: A30087-002  
REQUESTER: KGH  
APPROVED BY: *PJ*

**COMMENTS:**

| DET. CODE | COMPOUND                         | CONC., ug/l |
|-----------|----------------------------------|-------------|
| 509       | BENZENE.....                     | 10 U        |
| 519       | BROMODICHLOROMETHANE.....        | <10         |
| 520       | BROMOFORM.....                   | 10 U        |
| 524       | CARBON TETRACHLORIDE.....        | 10 U        |
| 525       | CHLOROBENZENE.....               | 10 U        |
| 527       | CHLOROETHANE.....                | 10 U        |
| 610       | 2-CHLOROETHYL VINYL ETHER.....   | 10 U        |
| 528       | CHLOROFORM.....                  | 12          |
| 535       | DIBROMOCHLOROMETHANE.....        | 10 U        |
| 578       | 1,1-DICHLOROETHANE.....          | 10 U        |
| 584       | 1,2-DICHLOROETHANE.....          | 10 U        |
| 579       | 1,1-DICHLOROETHYLENE.....        | 10 U        |
| 604       | TRANS-1,2-DICHLOROETHYLENE.....  | 10 U        |
| 585       | 1,2-DICHLOROPROPANE.....         | 10 U        |
| 530       | CIS-1,3-DICHLOROPROPYLENE.....   | 10 U        |
| 605       | TRANS-1,3-DICHLOROPROPYLENE..... | 10 U        |
| 546       | ETHYL BENZENE.....               | 10 U        |
| 565       | METHYL BROMIDE.....              | 10 U        |
| 566       | METHYL CHLORIDE.....             | 10 U        |
| 571       | METHYLENE CHLORIDE.....          | 10 U        |
| 582       | 1,1,2,2-TETRACHLOROETHANE.....   | 10 U        |
| 596       | TETRACHLOROETHYLENE.....         | 58          |
| 600       | TOLUENE.....                     | 10 U        |
| 580       | 1,1,1-TRICHLOROETHANE.....       | 10 U        |
| 581       | 1,1,2-TRICHLOROETHANE.....       | 10 U        |
| 607       | TRICHLOROETHYLENE.....           | <10         |
| 608       | TRICHLOROFUOROMETHANE.....       | 10 U        |
| 622       | VINYL CHLORIDE.....              | <10         |

**ALSO PRESENT:**

Cis-1,2-Dichloroethylene 69

P.J.N 60150

9201-2(FUSION ENERGY) SUMPS 12/13/89 (WEDNESDAY)

MET MIKE FINGER AT 9201-2 AT 1300 TO SAMPLE TWO MORE SUMPS IN THE BASEMENT. THE FIRST SUMP DAVE REED AND I WENT TO WAS ON THE FAR WEST SIDE IN THE MIDDLE OF THE BUILDING. PLEASE REFER TO ENGINEERING DRAWING # P2E 119264 AREA F-2.5. ELLIOTT BARNETT HAS THIS DRAWING.

THE WATER IN THIS SUMP WAS FAIRLY CLEAR BUT HAD A HEAVY SHEEN ON TOP. THE AREA THAT THE SUMP WAS IN WAS AROUND SOME OLD "Z-OIL" TANKS. WE HAD TO CRAWL THRU PIPES WITH FLASH LIGHTS AND EVERYTHING HAD A OILY FEEL TO IT. A FECAL COLIFORM SAMPLE WAS ADDED AS A PRECAUTIONARY MEASURE.

FIELD READINGS: PH: 7.8 TEMP: 14.9 °C TIME: 1400  
EMG #069

GRABS: 016, 024, 102, 105, 115, 139, 142, 221, 362, 444, 454, 455, 302,  
DISSOLVED Hg REQ # A30089 COC # 7582 TIME: 1400  
SUB-SAMPLE # 001 (NOTED AS SUMP # 3)

THE SECOND SUMP SAMPLED WAS LOCATED ON THE NORTH SIDE OF THE BUILDING. REFER TO AREA Q-12 OF SAME DRAWING. THIS SUMP WAS SAMPLED DURING THE SPILL RESPONSE ON 12/11/89 (P.J. # 6050). THE SUMP IS FED FROM THE WEST SIDE AND ALSO BY AN UNDERGROUND STREAM ON THE S/E CORNER. MIKE FINGER KEPT THE SUMP PUMP ON WHICH PERMITTED DAVE & ME TO SAMPLE ONLY THE UNDER GROUND FEED. THIS STREAM WAS OF CONCERN BECAUSE IT RUNS FROM EAST-TO-WEST WHERE SOME MERCURY CONTAMINATED SOIL (AND A LOT OF IT) HAS BEEN COVERED WITH BLACK PLASTIC. THE FECAL COLIFORM SAMPLE TAKEN IN THIS SERIES OF SAMPLES WAS TAKEN FROM THE WEST FEED BECAUSE OF A POSSIBLE SANITARY SEWER LEAK (DRIP) ON THE SOUTH SIDE OF THE BUILDING, AROUND WHERE THIS FEED BEGINS.

FIELD READINGS: PH: 7.9 TEMP: 14.8 °C TIME: 1500

GRABS: REQ # A30089 COC # 7582 TIME: 1500 SUB-SAMPLE # 002 (SUMP # 4)  
TRIP BLANK: REQ # A30090 COC # 7582 TIME: 1230 IN 9704-1 LAB

I'M DUN RITIN'

*Mark Dillon*

## ENDS001 Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30089

Sample loc: MULTIPLE  
Date: 12-13-89  
Time: 13:00

Sampled by: 13718

Handling: NEED BY 12-23-89

Remarks:

\*\*\*\*\*

| DC | CAS NUMBER | DETERMINATION | BASIS/PREP | /PHASE | ANSWER | UNITS | DATE | TIME | METHOD | ANA |
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|

Sample: 001 Location: SUMP #03

|                          |            |                               |              |           |         |       |        |          |       |       |     |
|--------------------------|------------|-------------------------------|--------------|-----------|---------|-------|--------|----------|-------|-------|-----|
| 102                      | 12587-46-1 | Alpha Activity                | As Rec/Total | /Complete | 12      | +/-2  | pCi/l  | 12/28/89 | 13:00 | ***** | 039 |
| 105                      | 12587-47-2 | Beta Activity                 | As Rec/Total | /Complete | 18      | +/-3  | pCi/l  | 12/28/89 | 13:00 | ***** | 039 |
| 302                      |            | Coliform, Fecal               | As Rec/Total | /Complete | <1      |       | CO./1L | 12/14/89 | 13:00 | 909C  | 107 |
| 024                      | 7439-97-6  | Mercury                       | As Rec/Total | /Complete | <0.0002 |       | mg/l   | 12/13/89 | 13:00 | 245.1 | 103 |
| 444                      |            | Oil and Grease                | As Rec/Total | /Complete | 94      | +/-9  | mg/l   | 12/15/89 | 15:00 | 413.1 | 013 |
| 454                      |            | Residue, Filterable (TDS)     | As Rec/Total | /Complete | 200     | +/-40 | mg/l   | 12/14/89 | 15:00 | 160.1 | 113 |
| 455                      |            | Residue, Non-Filterable (TSS) | As Rec/Total | /Complete | <5      |       | mg/l   | 12/14/89 | 10:30 | 160.2 | 113 |
| 142                      | 7440-61-1  | Uranium, Total                | As Rec/Total | /Complete | 0.004   |       | mg/l   | 12/20/89 | 13:00 | ***** | 102 |
| 139                      |            | Uranium-235 Percent           | As Rec/Total | /Complete | 0.75    |       | %      | 12/20/89 | 13:00 | ***** | 102 |
| Dissolved Hg <.0002 mg/l |            |                               |              |           |         |       |        |          |       |       |     |

ICP Sweep

|     |           |           |              |           |         |  |      |          |       |       |     |
|-----|-----------|-----------|--------------|-----------|---------|--|------|----------|-------|-------|-----|
| 001 | 7429-90-5 | Aluminum  | As Rec/Total | /Complete | 0.05    |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 003 | 7440-38-2 | Arsenic   | As Rec/Total | /Complete | <0.04   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 004 | 7440-39-3 | Barium    | As Rec/Total | /Complete | 0.0423  |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 006 | 7440-41-7 | Beryllium | As Rec/Total | /Complete | <0.0001 |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 007 | 7440-42-8 | Boron     | As Rec/Total | /Complete | 0.143   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 008 | 7440-43-9 | Cadmium   | As Rec/Total | /Complete | <0.003  |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 009 | 7440-70-2 | Calcium   | As Rec/Total | /Complete | 56.0    |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 010 | 7440-45-1 | Cerium    | As Rec/Total | /Complete | <0.02   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 011 | 7440-47-3 | Chromium  | As Rec/Total | /Complete | <0.006  |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 012 | 7440-48-4 | Cobalt    | As Rec/Total | /Complete | 0.007   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 013 | 7440-50-8 | Copper    | As Rec/Total | /Complete | 0.016   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 014 | 7440-55-3 | Gallium   | As Rec/Total | /Complete | <0.01   |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 018 | 7439-89-6 | Iron      | As Rec/Total | /Complete | 0.31    |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |
| 019 | 7439-91-0 | Lanthanum | As Rec/Total | /Complete | <0.003  |  | mg/l | 12/20/89 | 07:48 | 200.7 | 067 |

ENDS001

## Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30089

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| DC  | CAS NUMBER | DETERMINATION | BASIS/PREP   | /PHASE    | ANSWER  | UNITS | DATE     | TIME  | METHOD | ANA |
|-----|------------|---------------|--------------|-----------|---------|-------|----------|-------|--------|-----|
| 020 | 7439-92-1  | Lead          | As Rec/Total | /Complete | 0.11    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 021 | 7439-93-2  | Lithium       | As Rec/Total | /Complete | 0.002   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 022 | 7439-95-4  | Magnesium     | As Rec/Total | /Complete | 7.69    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 023 | 7439-96-5  | Manganese     | As Rec/Total | /Complete | 0.034   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 025 | 7439-98-7  | Molybdenum    | As Rec/Total | /Complete | <0.006  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 026 | 7440-02-0  | Nickel        | As Rec/Total | /Complete | <0.007  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 027 | 7440-03-1  | Niobium       | As Rec/Total | /Complete | <0.01   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 030 | 7723-14-0  | Phosphorus    | As Rec/Total | /Complete | 0.08    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 032 | 7440-09-7  | Potassium     | As Rec/Total | /Complete | 3.4     | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 035 | 7440-20-2  | Scandium      | As Rec/Total | /Complete | <0.0004 | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 038 | 7440-22-4  | Silver        | As Rec/Total | /Complete | <0.004  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 039 | 7440-23-5  | Sodium        | As Rec/Total | /Complete | 9.08    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 040 | 7440-24-6  | Strontium     | As Rec/Total | /Complete | 0.171   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 043 | 7440-29-1  | Thorium       | As Rec/Total | /Complete | <0.01   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 045 | 7440-32-6  | Titanium      | As Rec/Total | /Complete | 0.004   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 046 | 7440-62-2  | Vanadium      | As Rec/Total | /Complete | <0.004  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 048 | 7440-66-6  | Zinc          | As Rec/Total | /Complete | 0.060   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 049 | 7440-67-7  | Zirconium     | As Rec/Total | /Complete | <0.002  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |

## Gamma Activity

|     |              |              |           |    |       |       |          |       |       |     |
|-----|--------------|--------------|-----------|----|-------|-------|----------|-------|-------|-----|
| 152 | Gamma, Total | As Rec/Total | /Complete | 94 | +/-20 | pCi/l | 12/19/89 | 13:00 | ***** | 039 |
|-----|--------------|--------------|-----------|----|-------|-------|----------|-------|-------|-----|

## PCBs

|     |            |              |           |       |  |      |          |       |     |     |
|-----|------------|--------------|-----------|-------|--|------|----------|-------|-----|-----|
| 233 | PCB, Total | As Rec/Total | /Complete | <0.01 |  | mg/l | 12/18/89 | 10:30 | 608 | 114 |
|-----|------------|--------------|-----------|-------|--|------|----------|-------|-----|-----|

## Volatile Organics

|     |          |                           |              |           |     |      |          |       |     |     |
|-----|----------|---------------------------|--------------|-----------|-----|------|----------|-------|-----|-----|
| 580 | 71-55-6  | 1,1,1-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 582 | 79-34-5  | 1,1,2,2-Tetrachloroethane | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 581 | 79-00-5  | 1,1,2-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 578 | 75-34-3  | 1,1-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 579 | 75-35-4  | 1,1-Dichloroethene        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 584 | 107-06-2 | 1,2-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 585 | 78-87-5  | 1,2-Dichloropropane       | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 610 | 110-75-8 | 2-Chloroethylvinyl ether  | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 509 | 71-43-2  | Benzene                   | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 519 | 75-27-4  | Bromodichloromethane      | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 520 | 75-25-2  | Bromoform                 | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 565 | 74-83-9  | Bromomethane              | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |
| 524 | 56-23-5  | Carbon tetrachloride      | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:09 | 624 | 086 |

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## Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30089

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| CAS NUMBER     | DETERMINATION             | BASIS/PREP   | /PHASE    | ANSWER | UNITS | DATE     | TIME     | METHOD | ANA |
|----------------|---------------------------|--------------|-----------|--------|-------|----------|----------|--------|-----|
| 525 108-90-7   | Chlorobenzene             | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 527 75-00-3    | Chloroethane              | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 528 67-66-3    | Chloroform                | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 566 74-87-3    | Chloromethane             | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 535 124-48-1   | Dibromochloromethane      | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 546 100-41-4   | EThylbenzene              | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 571 75-09-2    | Methylene chloride        | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 596 127-18-4   | Tetrachloroethene         | As Rec/Total | /Complete | 220    | +/-20 | ug/l     | 12/14/89 | 09:09  | 624 |
| 600 108-88-3   | Toluene                   | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 607 79-01-6    | Trichloroethene           | As Rec/Total | /Complete | 24     | +/-2  | ug/l     | 12/14/89 | 09:09  | 624 |
| 608 75-69-4    | Trichlorofluoromethane    | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 622 75-01-4    | Vinyl chloride            | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 630 10061-01-5 | cis-1,3-Dichloropropene   | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 604 156-60-5   | trans-1,2-Dichloroethene  | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |
| 605 10061-02-6 | trans-1,3-Dichloropropene | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 09:09    | 624    | 086 |

Sample: 002 Location: SUMP #04

|                |                               |              |           |       |       |        |          |       |           |
|----------------|-------------------------------|--------------|-----------|-------|-------|--------|----------|-------|-----------|
| 102 12587-46-1 | Alpha Activity                | As Rec/Total | /Complete | 16    | +/-3  | pCi/l  | 12/28/89 | 13:00 | ***** 039 |
| 105 12587-47-2 | Beta Activity                 | As Rec/Total | /Complete | 15    | +/-2  | pCi/l  | 12/28/89 | 13:00 | ***** 039 |
| 302            | Coliform, Fecal               | As Rec/Total | /Complete | 12    | +/-6  | CO./1L | 12/14/89 | 16:00 | 909C 107  |
| 024 7439-97-6  | Mercury                       | As Rec/Total | /Complete | 0.013 |       | mg/l   | 12/13/89 | 13:00 | 245.1 103 |
| 444            | Oil and Grease                | As Rec/Total | /Complete | <2    |       | mg/l   | 12/15/89 | 15:00 | 413.1 013 |
| +54            | Residue, Filterable (TDS)     | As Rec/Total | /Complete | 330   | +/-70 | mg/l   | 12/14/89 | 15:00 | 160.1 113 |
| +55            | Residue, Non-Filterable (TSS) | As Rec/Total | /Complete | 40    | +/-8  | mg/l   | 12/14/89 | 10:40 | 160.2 113 |
| 142 7440-61-1  | Uranium, Total                | As Rec/Total | /Complete | 0.012 |       | mg/l   | 12/20/89 | 13:00 | ***** 102 |
| 139            | Uranium-235 Percent           | As Rec/Total | /Complete | 0.71  |       | %      | 12/20/89 | 13:00 | ***** 102 |

Dissolved Hg/cancelled per Carter/customer

ICP Sweep

|               |           |              |           |         |  |      |          |       |           |
|---------------|-----------|--------------|-----------|---------|--|------|----------|-------|-----------|
| 001 7429-90-5 | Aluminum  | As Rec/Total | /Complete | 0.33    |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 003 7440-38-2 | Arsenic   | As Rec/Total | /Complete | <0.04   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 004 7440-39-3 | Barium    | As Rec/Total | /Complete | 0.102   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 006 7440-41-7 | Beryllium | As Rec/Total | /Complete | <0.0001 |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 007 7440-42-8 | Boron     | As Rec/Total | /Complete | 0.040   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 008 7440-43-9 | Cadmium   | As Rec/Total | /Complete | <0.003  |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 009 7440-70-2 | Calcium   | As Rec/Total | /Complete | 90.6    |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 010 7440-45-1 | Cerium    | As Rec/Total | /Complete | <0.02   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 011 7440-47-3 | Chromium  | As Rec/Total | /Complete | <0.006  |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 012 7440-48-4 | Cobalt    | As Rec/Total | /Complete | 0.010   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 013 7440-50-8 | Copper    | As Rec/Total | /Complete | 0.025   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 014 7440-55-3 | Gallium   | As Rec/Total | /Complete | <0.01   |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |
| 018 7439-89-6 | Iron      | As Rec/Total | /Complete | 0.17    |  | mg/l | 12/20/89 | 07:48 | 200.7 067 |

ENDS001

## Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30089

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| C  | CAS NUMBER | DETERMINATION | BASIS/PREP   | /PHASE    | ANSWER  | UNITS | DATE     | TIME  | METHOD | ANA |
|----|------------|---------------|--------------|-----------|---------|-------|----------|-------|--------|-----|
| 19 | 7439-91-0  | Lanthanum     | As Rec/Total | /Complete | <0.003  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 20 | 7439-92-1  | Lead          | As Rec/Total | /Complete | <0.02   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 21 | 7439-93-2  | Lithium       | As Rec/Total | /Complete | 0.037   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 22 | 7439-95-4  | Magnesium     | As Rec/Total | /Complete | 10.7    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 23 | 7439-96-5  | Manganese     | As Rec/Total | /Complete | 0.082   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 25 | 7439-98-7  | Molybdenum    | As Rec/Total | /Complete | 0.025   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 26 | 7440-02-0  | Nickel        | As Rec/Total | /Complete | <0.007  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 27 | 7440-03-1  | Niobium       | As Rec/Total | /Complete | <0.01   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 30 | 7723-14-0  | Phosphorus    | As Rec/Total | /Complete | 0.09    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 32 | 7440-09-7  | Potassium     | As Rec/Total | /Complete | 3.3     | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 35 | 7440-20-2  | Scandium      | As Rec/Total | /Complete | <0.0004 | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 38 | 7440-22-4  | Silver        | As Rec/Total | /Complete | <0.004  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 39 | 7440-23-5  | Sodium        | As Rec/Total | /Complete | 20.1    | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 40 | 7440-24-6  | Strontium     | As Rec/Total | /Complete | 0.288   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 43 | 7440-29-1  | Thorium       | As Rec/Total | /Complete | <0.01   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 45 | 7440-32-6  | Titanium      | As Rec/Total | /Complete | 0.004   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 46 | 7440-62-2  | Vanadium      | As Rec/Total | /Complete | <0.004  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 48 | 7440-66-6  | Zinc          | As Rec/Total | /Complete | 0.018   | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |
| 49 | 7440-67-7  | Zirconium     | As Rec/Total | /Complete | <0.002  | mg/l  | 12/20/89 | 07:48 | 200.7  | 067 |

## Gamma Activity

|     |              |              |           |    |      |       |          |       |       |     |
|-----|--------------|--------------|-----------|----|------|-------|----------|-------|-------|-----|
| 152 | Gamma, Total | As Rec/Total | /Complete | 46 | +/-9 | pci/l | 12/19/89 | 13:00 | ***** | 039 |
|-----|--------------|--------------|-----------|----|------|-------|----------|-------|-------|-----|

## PCBs

|     |            |              |           |         |  |      |          |       |     |     |
|-----|------------|--------------|-----------|---------|--|------|----------|-------|-----|-----|
| 233 | PCB, Total | As Rec/Total | /Complete | <0.0005 |  | mg/l | 12/18/89 | 09:50 | 608 | 114 |
|-----|------------|--------------|-----------|---------|--|------|----------|-------|-----|-----|

## Volatile Organics

|     |          |                           |              |           |     |      |          |       |     |     |
|-----|----------|---------------------------|--------------|-----------|-----|------|----------|-------|-----|-----|
| 580 | 71-55-6  | 1,1,1-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 582 | 79-34-5  | 1,1,2,2-Tetrachloroethane | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 581 | 79-00-5  | 1,1,2-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 578 | 75-34-3  | 1,1-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 579 | 75-35-4  | 1,1-Dichloroethene        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 584 | 107-06-2 | 1,2-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 585 | 78-87-5  | 1,2-Dichloropropane       | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 510 | 110-75-8 | 2-Chloroethylvinyl ether  | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 509 | 71-43-2  | Benzene                   | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 519 | 75-27-4  | Bromodichloromethane      | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 520 | 75-25-2  | Bromoform                 | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |
| 565 | 74-83-9  | Bromomethane              | As Rec/Total | /Complete | 10U | ug/l | 12/14/89 | 09:44 | 624 | 086 |

ENDS001

## Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30089

PAGE: 5

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| C | CAS NUMBER    | DETERMINATION             | BASIS/PREP   | /PHASE    | ANSWER | UNITS | DATE | TIME           | METHOD | ANA |
|---|---------------|---------------------------|--------------|-----------|--------|-------|------|----------------|--------|-----|
|   | 24 56-23-5    | Carbon tetrachloride      | As Rec/Total | /Complete | 240    | +/-20 | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 25 108-90-7   | Chlorobenzene             | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 27 75-00-3    | Chloroethane              | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 28 67-66-3    | Chloroform                | As Rec/Total | /Complete | 32     | +/-3  | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 66 74-87-3    | Chloromethane             | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 35 124-48-1   | Dibromochloromethane      | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 46 100-41-4   | EThylbenzene              | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 71 75-09-2    | Methylene chloride        | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 96 127-18-4   | Tetrachloroethene         | As Rec/Total | /Complete | 19     | +/-2  | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 00 108-88-3   | Toluene                   | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 07 79-01-6    | Trichloroethene           | As Rec/Total | /Complete | <10    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 08 75-69-4    | Trichlorofluoromethane    | As Rec/Total | /Complete | <10    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 22 75-01-4    | Vinyl chloride            | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 30 10061-01-5 | cis-1,3-Dichloropropene   | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 04 156-60-5   | trans-1,2-Dichloroethene  | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |
|   | 05 10061-02-6 | trans-1,3-Dichloropropene | As Rec/Total | /Complete | 10U    |       | ug/l | 12/14/89 09:44 | 624    | 086 |

\*\*\* LAST PAGE \*\*\*

Y-12 PLANT LABORATORY  
GC/MS ANALYSIS RESULTS

VOLATILE ORGANICS - METHOD 624 (10-26-84)

SAMPLING DATE: 12/13/89  
ANALYSIS DATE: 12/14/89  
ANALYZED BY: 86

REQUISITION: A30089-001  
REQUESTER: KGH  
APPROVED BY: *[Signature]*

COMMENTS:

| DET. CODE | COMPOUND                         | CONC., UG/L |
|-----------|----------------------------------|-------------|
| 509       | BENZENE.....                     | 10 U        |
| 519       | BROMODICHLOROMETHANE.....        | 10 U        |
| 520       | BROMOFORM.....                   | 10 U        |
| 524       | CARBON TETRACHLORIDE.....        | 10 U        |
| 525       | CHLOROBENZENE.....               | 10 U        |
| 527       | CHLOROETHANE.....                | 10 U        |
| 610       | 2-CHLOROETHYL VINYL ETHER.....   | 10 U        |
| 528       | CHLOROFORM.....                  | 10 U        |
| 535       | DIBROMOCHLOROMETHANE.....        | 10 U        |
| 578       | 1,1-DICHLOROETHANE.....          | 10 U        |
| 584       | 1,2-DICHLOROETHANE.....          | 10 U        |
| 579       | 1,1-DICHLOROETHYLENE.....        | 10 U        |
| 604       | TRANS-1,2-DICHLOROETHYLENE.....  | 10 U        |
| 585       | 1,2-DICHLOROPROPANE.....         | 10 U        |
| 530       | CIS-1,3-DICHLOROPROPYLENE.....   | 10 U        |
| 605       | TRANS-1,3-DICHLOROPROPYLENE..... | 10 U        |
| 546       | ETHYL BENZENE.....               | 10 U        |
| 565       | METHYL BROMIDE.....              | 10 U        |
| 566       | METHYL CHLORIDE.....             | 10 U        |
| 571       | METHYLENE CHLORIDE.....          | 10 U        |
| 582       | 1,1,2,2-TETRACHLOROETHANE.....   | 10 U        |
| 596       | TETRACHLOROETHYLENE.....         | 220         |
| 600       | TOLUENE.....                     | 10 U        |
| 580       | 1,1,1-TRICHLOROETHANE.....       | 10 U        |
| 581       | 1,1,2-TRICHLOROETHANE.....       | 10 U        |
| 607       | TRICHLOROETHYLENE.....           | 24          |
| 608       | TRICHLOROFLUOROMETHANE.....      | 4210u       |
| 622       | VINYL CHLORIDE.....              | 3m 10 U     |

ALSO PRESENT:

|       |                               |       |
|-------|-------------------------------|-------|
| ----- | <u>Cis-1,2-Dichloroethyne</u> | 180   |
| ----- | <u>Freon 113</u>              | 13    |
| ----- | -----                         | ----- |
| ----- | -----                         | ----- |
| ----- | -----                         | ----- |
| ----- | -----                         | ----- |

## ENDS001 Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30088

Env Sample Code: 8601

Sample desc: H20

Sample loc: TRIP BLANK (9201-2 SUMMER) DEC 22 Requester name: HANZELKA, K  
 Date: 12-12-89 Addr: 9115, 8219, 0123  
 Time: 14:00 Phone: 4-1599

Sampled by: 14224/13718

Date received: 12-13-89  
 Reported: 12-20-89

Handling: ND BY 1/12/90

Charge code: S2211601

Remarks:

Approved by: SLAGLE /DKH

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| DC | CAS NUMBER | DETERMINATION | BASIS/PREP | /PHASE | ANSWER | UNITS | DATE | TIME | METHOD | ANA |
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|

## Volatile organics

|     |          |                           |              |           |     |      |          |          |       |     |     |
|-----|----------|---------------------------|--------------|-----------|-----|------|----------|----------|-------|-----|-----|
| 580 | 71-55-6  | 1,1,1-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 582 | 79-34-5  | 1,1,2,2-Tetrachloroethane | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 581 | 79-00-5  | 1,1,2-Trichloroethane     | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 578 | 75-34-3  | 1,1-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 579 | 75-35-4  | 1,1-Dichloroethene        | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 584 | 107-06-2 | 1,2-Dichloroethane        | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 585 | 78-87-5  | 1,2-Dichloropropane       | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 510 | 110-75-8 | 2-Chloroethylvinyl ether  | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 509 | 71-43-2  | Benzene                   | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 519 | 75-27-4  | Bromodichloromethane      | As Rec/Total | /Complete | <10 | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 520 | 75-25-2  | Bromoform                 | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 565 | 74-83-9  | Bromomethane              | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 524 | 56-23-5  | Carbon tetrachloride      | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 525 | 108-90-7 | Chlorobenzene             | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 527 | 75-00-3  | Chloroethane              | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 528 | 67-66-3  | Chloroform                | As Rec/Total | /Complete | 16  | +/-2 | ug/l     | 12/13/89 | 12:52 | 624 | 086 |
| 566 | 74-87-3  | Chloromethane             | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 535 | 124-48-1 | Dibromochloromethane      | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 546 | 100-41-4 | EThylbenzene              | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 571 | 75-09-2  | Methylene chloride        | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 596 | 127-18-4 | Tetrachloroethene         | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 600 | 108-88-3 | Toluene                   | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 607 | 79-01-6  | Trichloroethene           | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 608 | 75-69-4  | Trichlorofluoromethane    | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |
| 522 | 75-01-4  | Vinyl chloride            | As Rec/Total | /Complete | 10U | ug/l | 12/13/89 | 12:52    | 624   | 086 |     |

ENDS001

## Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30088

PAGE: 2

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| DC  | CAS NUMBER | DETERMINATION             | BASIS/PREP   | /PHASE    | ANSWER | UNITS | DATE     | TIME  | METHOD | ANA |
|-----|------------|---------------------------|--------------|-----------|--------|-------|----------|-------|--------|-----|
| 530 | 10061-01-5 | cis-1,3-Dichloropropene   | As Rec/Total | /Complete | 10U    | ug/l  | 12/13/89 | 12:52 | 624    | 086 |
| 604 | 156-60-5   | trans-1,2-Dichloroethene  | As Rec/Total | /Complete | 10U    | ug/l  | 12/13/89 | 12:52 | 624    | 086 |
| 605 | 10061-02-6 | trans-1,3-Dichloropropene | As Rec/Total | /Complete | 10U    | ug/l  | 12/13/89 | 12:52 | 624    | 086 |

\*\*\* LAST PAGE \*\*\*

## ENDS001 Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30090

Env Sample Code: 8601

Sample desc: H2O

Sample loc: TRIP BLANK 9201-2

Date: 12-13-89

Time: 00:00

Requester name: HANZELKA

Addr: 9115 ,8219,0123

Phone: 4-1599

Sampled by: 13718

Date received: 12-14-89

Reported: 12-20-89

Handling: NEED BY 1-13-89

Charge code: S2211601

Remarks:

Approved by: SLAGLE /DKH

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| DC | CAS NUMBER | DETERMINATION | BASIS/PREP | /PHASE | ANSWER | UNITS | DATE | TIME | METHOD | ANA |
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|
|----|------------|---------------|------------|--------|--------|-------|------|------|--------|-----|

## Volatile Organics

|              |                           |              |           |     |      |      |          |       |     |     |
|--------------|---------------------------|--------------|-----------|-----|------|------|----------|-------|-----|-----|
| 580 71-55-6  | 1,1,1-Trichloroethane     | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 582 79-34-5  | 1,1,2,2-Tetrachloroethane | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 581 79-00-5  | 1,1,2-Trichloroethane     | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 578 75-34-3  | 1,1-Dichloroethane        | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 579 75-35-4  | 1,1-Dichloroethene        | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 584 107-06-2 | 1,2-Dichloroethane        | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 585 78-87-5  | 1,2-Dichloropropane       | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 510 110-75-8 | 2-Chloroethylvinyl ether  | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 509 71-43-2  | Benzene                   | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 519 75-27-4  | Bromodichloromethane      | As Rec/Total | /Complete | <10 |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 520 75-25-2  | Bromoform                 | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 565 74-83-9  | Bromomethane              | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 524 56-23-5  | Carbon tetrachloride      | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 525 108-90-7 | Chlorobenzene             | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 527 75-00-3  | Chloroethane              | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 528 67-66-3  | Chloroform                | As Rec/Total | /Complete | 17  | +/-2 | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 566 74-87-3  | Chloromethane             | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 535 124-48-1 | Dibromochloromethane      | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 546 100-41-4 | Ethylbenzene              | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 571 75-09-2  | Methylene chloride        | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 596 127-18-4 | Tetrachloroethene         | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 600 108-88-3 | Toluene                   | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 607 79-01-6  | Trichloroethene           | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 608 75-69-4  | Trichlorofluoromethane    | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |
| 622 75-01-4  | Vinyl chloride            | As Rec/Total | /Complete | 10U |      | ug/l | 12/14/89 | 08:45 | 624 | 086 |

## ENDS001 Y-12 PLANT LAB ENVIRONMENTAL ANALYSES REPORT

Requisition: A30090

PAGE: 2

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| DC | CAS NUMBER     | DETERMINATION             | BASIS/PREP   | /PHASE    | ANSWER | UNITS | DATE     | TIME  | METHOD | ANA |
|----|----------------|---------------------------|--------------|-----------|--------|-------|----------|-------|--------|-----|
|    | 530 10061-01-5 | cis-1,3-Dichloropropene   | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 08:45 | 624    | 086 |
|    | 504 156-60-5   | trans-1,2-Dichloroethene  | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 08:45 | 624    | 086 |
|    | 505 10061-02-6 | trans-1,3-Dichloropropene | As Rec/Total | /Complete | 10U    | ug/l  | 12/14/89 | 08:45 | 624    | 086 |

\*\*\* LAST PAGE \*\*\*

## REQUISITION FOR ENVIRONMENTAL ANALYSES

Requisition: A30085  
7571Bin: \_\_\_\_\_  
No. Bottles: 3Env Sample Code: \_\_\_\_\_  
Sample Desc: 150  
Sample Loc: 9201-2/FUSIONE LINE LEAK "SPILL"  
Date: 12/11/89  
Time: 1500  
By: J3218Requester Badge: 26727  
Name: \_\_\_\_\_  
Addr: \_\_\_\_\_ Rm: \_\_\_\_\_  
Phone: 4-1599  
REFID: \_\_\_\_\_Handling: NEED IMMEDIATELY Phone: 4-1599 Charge Code: S2211401  
S2211401

Remarks: #6050 No. Samples if &gt;1: \_\_\_\_\_

(For multiple sample locations, put MULT under sample loc and list locations.)  
\*\*\*\*\*  
Please request determinations by DC codes.(See Appendix B in CUSTOMER MANUAL for complete list of DC's.)  
\*\*\*\*\*

DC 016 DC 142 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

DC 024 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

DC 139 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

other \_\_\_\_\_ (preprinted labels may be affixed in this box)  
\*\*\*\*\*If more than one sample, please identify samples in the space below.  
\*\*\*\*\*

SUB SAMPLE 001 \_\_\_\_\_

SUB SAMPLE 011 \_\_\_\_\_

SUB SAMPLE 002 \_\_\_\_\_

SUB SAMPLE 012 \_\_\_\_\_

SUB SAMPLE 003 \_\_\_\_\_

SUB SAMPLE 013 \_\_\_\_\_

SUB SAMPLE 004 \_\_\_\_\_

SUB SAMPLE 014 \_\_\_\_\_

SUB SAMPLE 005 \_\_\_\_\_

SUB SAMPLE 015 \_\_\_\_\_

SUB SAMPLE 006 \_\_\_\_\_

SUB SAMPLE 016 \_\_\_\_\_

SUB SAMPLE 007 \_\_\_\_\_

SUB SAMPLE 017 \_\_\_\_\_

SUB SAMPLE 008 \_\_\_\_\_

SUB SAMPLE 018 \_\_\_\_\_

SUB SAMPLE 009 \_\_\_\_\_

SUB SAMPLE 019 \_\_\_\_\_

SUB SAMPLE 010 \_\_\_\_\_

SUB SAMPLE 020 \_\_\_\_\_

A30087

## REQUISITION FOR ENVIRONMENTAL ANALYSES

Requisition: A30087  
7582Bin: 40  
No. Bottles: 18 20

Env Sample Code:

Requester Badge: 26727Sample Desc: HgD 40Name: KYM NANZELKASample Loc: 9201-2 BASEMENTAddr: 911S Rm: \_\_\_\_\_Date: 12/12/89Phone: 4-1599Time: 1530

REFID: \_\_\_\_\_

By: L3718 / 14224Handling: NEED RESULTS BY 12/22/89Charge Code: S221401

Remarks: \_\_\_\_\_ No. Samples if &gt;1: \_\_\_\_\_

(For multiple sample locations, put MULT under sample loc and list locations.)  
\*\*\*\*\*

Please request determinations by DC codes.

(See Appendix B in CUSTOMER MANUAL for complete list of DC's.)

DC 024 DC 139 DC 362 DC 115 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_DC 454 DC 142 DC 102 DC 221 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_DC 455 DC 016 DC 105 DC 444 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_other DISSOLVED Hg \_\_\_\_\_

(preprinted labels may be affixed in this box)

\*\*\*\*\*  
\*\*\*\*\*

If more than one sample, please identify samples in the space below.

\*\*\*\*\*

SUB SAMPLE 001 Sample #1

SUB SAMPLE 011 \_\_\_\_\_

SUB SAMPLE 002 " #2

SUB SAMPLE 012 \_\_\_\_\_

SUB SAMPLE 003 \_\_\_\_\_

SUB SAMPLE 013 \_\_\_\_\_

SUB SAMPLE 004 \_\_\_\_\_

SUB SAMPLE 014 \_\_\_\_\_

SUB SAMPLE 005 \_\_\_\_\_

SUB SAMPLE 015 \_\_\_\_\_

SUB SAMPLE 006 \_\_\_\_\_

SUB SAMPLE 016 \_\_\_\_\_

SUB SAMPLE 007 \_\_\_\_\_

SUB SAMPLE 017 \_\_\_\_\_

SUB SAMPLE 008 \_\_\_\_\_

SUB SAMPLE 018 \_\_\_\_\_

SUB SAMPLE 009 \_\_\_\_\_

SUB SAMPLE 019 \_\_\_\_\_

SUB SAMPLE 010 \_\_\_\_\_

SUB SAMPLE 020 \_\_\_\_\_

7582

A30088

## REQUISITION FOR ENVIRONMENTAL ANALYSES

Requisition: A30088

Bin: \_\_\_\_\_  
No. Bottles: \_\_\_\_\_ 2

Env Sample Code: \_\_\_\_\_  
 Sample Desc: \_\_\_\_\_ H<sub>2</sub>O  
 Sample Loc: \_\_\_\_\_ TRIP BLANK (9201-2 Sump)  
 Date: \_\_\_\_\_ 12/12/82  
 Time: \_\_\_\_\_ 1400  
 By: \_\_\_\_\_ 142247 13178

Requester Badge: \_\_\_\_\_ 26727  
 Name: \_\_\_\_\_ KH  
 Addr: \_\_\_\_\_ 9115 Rm:  
 Phone: \_\_\_\_\_ 4-1599  
 REFID: \_\_\_\_\_

Handling: \_\_\_\_\_ Need dry 1/12/90 Charge Code: \_\_\_\_\_ 52211601

Remarks: \_\_\_\_\_ No. Samples if >1: \_\_\_\_\_

(For multiple sample locations, put MULT under sample loc and list locations.)  
\*\*\*\*\*

Please request determinations by DC codes.

(See Appendix B in CUSTOMER MANUAL for complete list of DC's.)

\*\*\*\*\*

DC 362 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_  
 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_  
 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

other \_\_\_\_\_ (preprinted labels may be affixed in this box)

\*\*\*\*\*

If more than one sample, please identify samples in the space below.  
\*\*\*\*\*

SUB SAMPLE 001 \_\_\_\_\_ SUB SAMPLE 011 \_\_\_\_\_

SUB SAMPLE 002 \_\_\_\_\_ SUB SAMPLE 012 \_\_\_\_\_

SUB SAMPLE 003 \_\_\_\_\_ SUB SAMPLE 013 \_\_\_\_\_

SUB SAMPLE 004 \_\_\_\_\_ SUB SAMPLE 014 \_\_\_\_\_

SUB SAMPLE 005 \_\_\_\_\_ SUB SAMPLE 015 \_\_\_\_\_

SUB SAMPLE 006 \_\_\_\_\_ SUB SAMPLE 016 \_\_\_\_\_

SUB SAMPLE 007 \_\_\_\_\_ SUB SAMPLE 017 \_\_\_\_\_

SUB SAMPLE 008 \_\_\_\_\_ SUB SAMPLE 018 \_\_\_\_\_

SUB SAMPLE 009 \_\_\_\_\_ SUB SAMPLE 019 \_\_\_\_\_

SUB SAMPLE 010 \_\_\_\_\_ SUB SAMPLE 020 \_\_\_\_\_

A30090

## REQUISITION FOR ENVIRONMENTAL ANALYSES

Requisition: A30090

7082

Bin:

No. Bottles: \_\_\_\_\_ 2

Env Sample Code: \_\_\_\_\_

Requester Badge: \_\_\_\_\_

Sample Desc: H2O

Name: KH

Sample Loc: TRIP BLANK 9201-2

Addr: 9115 RM: \_\_\_\_\_

Date: 12/13/89

Phone: 4-1599

Time: 1230

REFID: \_\_\_\_\_

By: 13218

Handling: Need dry 1/13/89

Charge Code: SC211601

Remarks: \_\_\_\_\_ No. Samples if &gt;1: \_\_\_\_\_

(For multiple sample locations, put MULT under sample loc and list locations.)  
\*\*\*\*\*

Please request determinations by DC codes.

(See Appendix B in CUSTOMER MANUAL for complete list of DC's.)  
\*\*\*\*\*

DC 362 DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_ DC \_\_\_\_\_

other \_\_\_\_\_ (preprinted labels may be affixed in this box)  
\*\*\*\*\*\*\*\*\*\*  
If more than one sample, please identify samples in the space below.  
\*\*\*\*\*

SUB SAMPLE 001 \_\_\_\_\_

SUB SAMPLE 011 \_\_\_\_\_

SUB SAMPLE 002 \_\_\_\_\_

SUB SAMPLE 012 \_\_\_\_\_

SUB SAMPLE 003 \_\_\_\_\_

SUB SAMPLE 013 \_\_\_\_\_

SUB SAMPLE 004 \_\_\_\_\_

SUB SAMPLE 014 \_\_\_\_\_

SUB SAMPLE 005 \_\_\_\_\_

SUB SAMPLE 015 \_\_\_\_\_

SUB SAMPLE 006 \_\_\_\_\_

SUB SAMPLE 016 \_\_\_\_\_

SUB SAMPLE 007 \_\_\_\_\_

SUB SAMPLE 017 \_\_\_\_\_

SUB SAMPLE 008 \_\_\_\_\_

SUB SAMPLE 018 \_\_\_\_\_

SUB SAMPLE 009 \_\_\_\_\_

SUB SAMPLE 019 \_\_\_\_\_

SUB SAMPLE 010 \_\_\_\_\_

SUB SAMPLE 020 \_\_\_\_\_

A30089

## REQUISITION FOR ENVIRONMENTAL ANALYSES

Requisition: A30089

7582

Bin:

No. Bottles: 22

Env Sample Code:

Sample Desc: H2O

Sample Loc: 9001-2 Sump#3&amp;4

Date: 12/13/69

Time: 1300 1500

By: 13718

Requester Badge:

Name: KM HANZELKA

Addr: 9115 Rm:

Phone: 44599

REFID:

Handling: Need Results by 12/23/69

Charge Code: S22140

Remarks: No. Samples if &gt;1:

(For multiple sample locations, put MULT under sample loc and list locations.)  
\*\*\*\*\*

Please request determinations by DC codes.

(See Appendix B in CUSTOMER MANUAL for complete list of DC's.)

DC 016 DC 105 DC 142 DC 444 DC 302 DC DC

DC 024 DC 115 DC 221 DC 454 DC DC DC

DC 102 DC 139 DC 362 DC 455 DC DC DC

other Dissolved Hg

(preprinted labels may be affixed in this box)

\*\*\*\*\*

\*\*\*\*\*

If more than one sample, please identify samples in the space below.

\*\*\*\*\*

SUB SAMPLE 001 Sump#3

SUB SAMPLE 011

SUB SAMPLE 002 Sump#4

SUB SAMPLE 012

SUB SAMPLE 003

SUB SAMPLE 013

SUB SAMPLE 004

SUB SAMPLE 014

SUB SAMPLE 005

SUB SAMPLE 015

SUB SAMPLE 006

SUB SAMPLE 016

SUB SAMPLE 007

SUB SAMPLE 017

SUB SAMPLE 008

SUB SAMPLE 018

SUB SAMPLE 009

SUB SAMPLE 019

SUB SAMPLE 010

SUB SAMPLE 020

**APPENDIX C**

**MERCURY IN SURFACE SOILS NEAR BUILDING 9201-2**

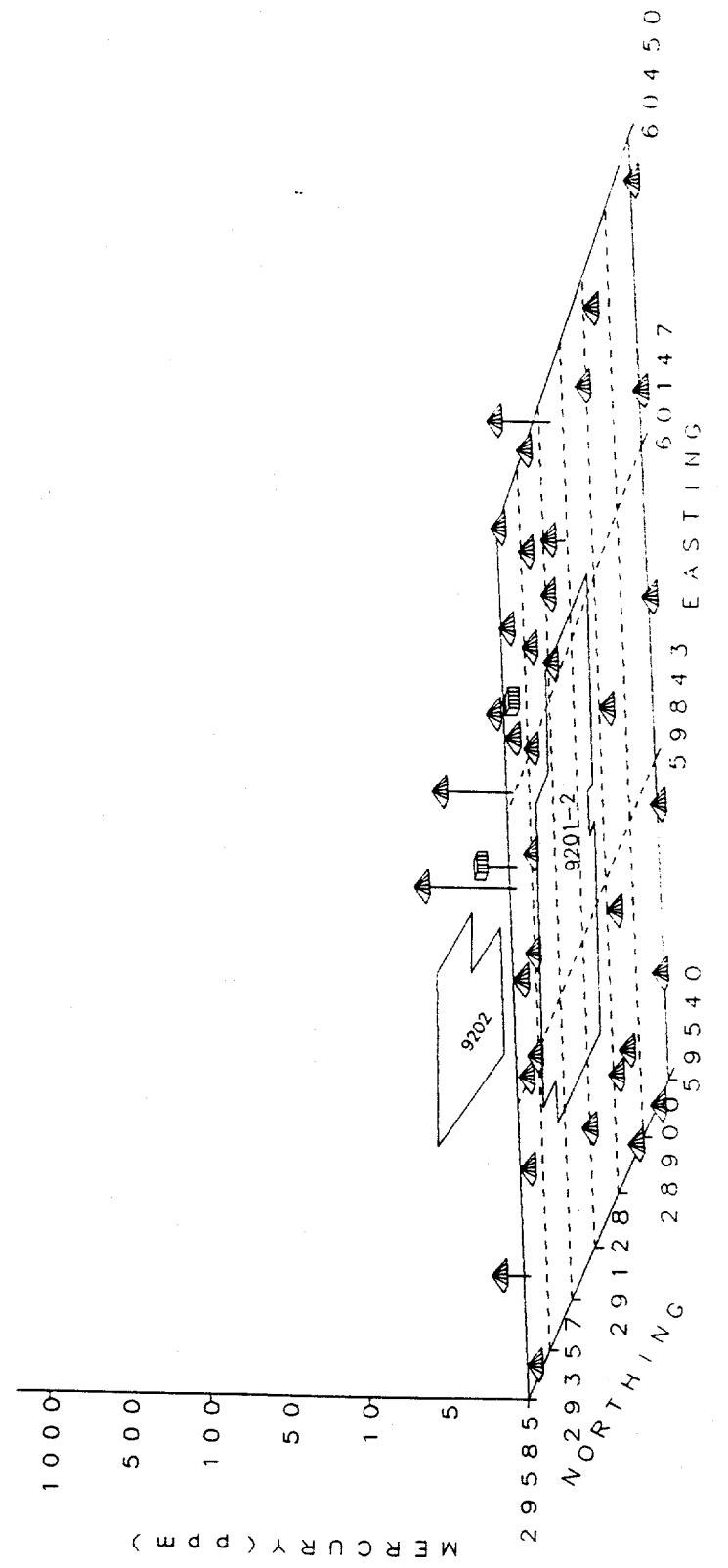


Fig. 1. Mercury is plotted on a logarithmic scale  
Biased samples - cubes Systematic samples - pyramids

**APPENDIX D**

**LOCATIONS OF AMBIENT AIR MONITORING SITES AT THE Y-12 PLANT**

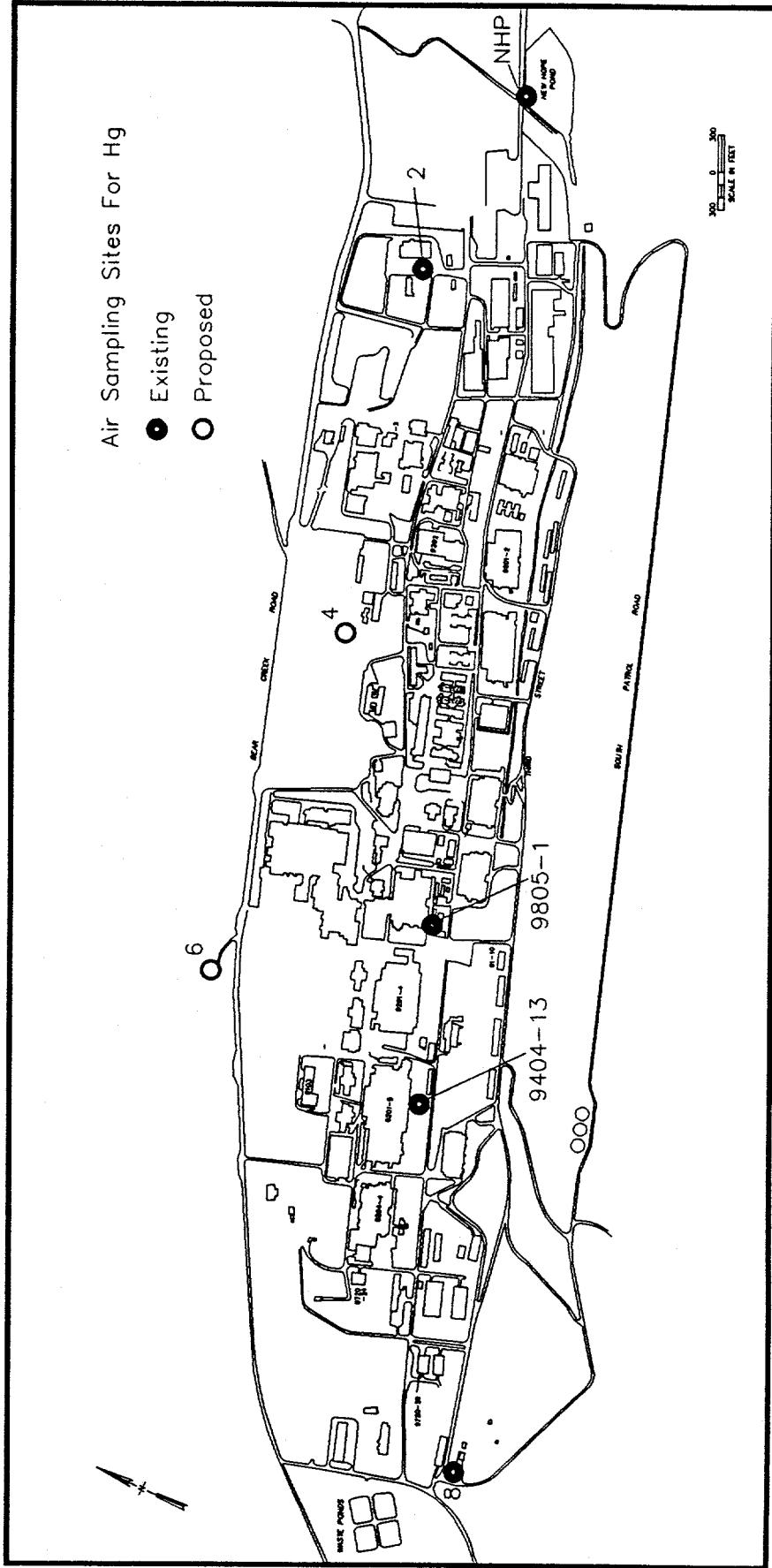


Fig. 2. Location of ambient air sampling sites for mercury at the Y-12 Plant

## **APPENDIX E**

**LOCATIONS OF PROPOSED SURFACE WATER SAMPLING SITES FOR MERCURY-USE AREA RFI**

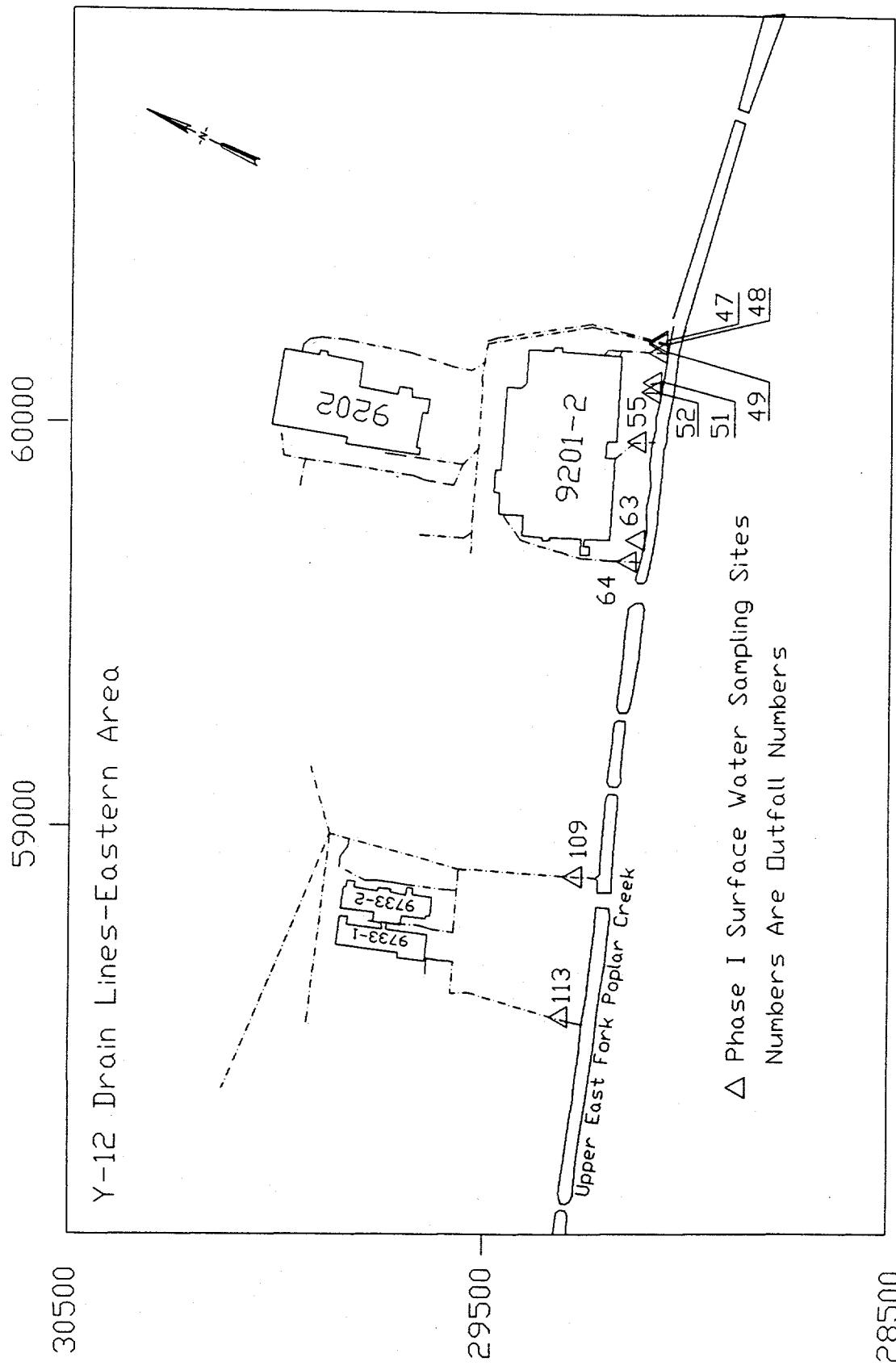


Fig. 3. Locations of proposed surface water sampling sites for the Mercury-Use Area RFI (Y/TS-579)

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