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Westinghouse Hanford Company Effluent Report for 300, 400, and 1100 Area Operations for Calendar Year 1988

M. J. McCarthy

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Assistant Secretary for Nuclear Energy

Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Hanford Operations and Engineering Contractor for the
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ABSTRACT

This report tabulates both radioactive and nonradioactive liquid and airborne effluent data for 300, 400, and 1100 Area operations at the Hanford Site. The 300 Area is primarily a research and development area. The 400 Area houses the Fast Flux Test Facility. The 1100 Area contains central stores and vehicle maintenance facilities. Releases to the environment from Westinghouse Hanford Company operations within these areas during calendar year 1988 were both consistent with previous years and within regulatory limits.

CONTENTS

LIST OF TABLES

LIST OF TERMS

ACV	administrative control values
CY	calendar year
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
DCG-Public	Derived Concentration Guide for the Public
DOE-RL	U.S. Department of Energy-Richland Operations Office
FFTF	Fast Flux Test Facility
MASF	maintenance and storage facility
MCL	maximum contaminant level
PNL	Pacific Northwest Laboratory
POTW	City of Richland public-owned treatment work
PRTR	Plutonium Recycle Test Reactor
RQ	reportable quantity
TRIGA	Test Reactor and Isotope Production, General Atomics
Westinghouse Hanford	Westinghouse Hanford Company

WESTINGHOUSE HANFORD COMPANY EFFLUENT REPORT FOR 300, 400, AND 1100 AREA OPERATIONS FOR CALENDAR YEAR 1988

1.0 SUMMARY

Westinghouse Hanford Company (Westinghouse Hanford) is the Operations and Engineering Contractor for the Hanford Site and operates facilities in the 100, 200 East, 200 West, 300, 400, and 1100 Areas. This report addresses effluents from the 300, 400, and 1100 Areas. Separate reports address effluents from the 100 Area and from the 200 Areas.

In addition to operating facilities in the 300, 400, and 1100 Areas, Westinghouse Hanford also provides landlord services for facilities operated by Pacific Northwest Laboratories (PNL) located in the 300 Area. These services include process sewer and sanitary waste system operation, steam heating, and disposal of radioactive liquid waste.

Releases from Westinghouse Hanford facilities in the 300, 400, and 1100 Areas remain well within the applicable administrative control values (ACV). Release quantities and concentrations are similar to those noted in past years, with the exception of releases of uranium to the 300 Area Process Sewer. With the shutdown of the Defense Reactor Fuel Fabrication Facilities in 1987, releases have decreased from historical levels of several hundred pounds per year to 94 lb in calendar year (CY) 1987 and 36 lb in CY 1988.

An unplanned release of approximately 10 lb of lead to the 300 Area Process Sewer occurred in May of 1988. This release exceeded the reportable quantity value of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and was promptly reported. More information on this release is provided in Section 5.3 of this document.

Airborne and liquid radioactive effluents constitute a major portion of the effluent sampling and monitoring program. Radioactive releases from facilities in the 300 and 400 Areas, which are operated by Westinghouse Hanford, totaled 38.1 Ci. Noble gases released from the Fast Flux Test Facility (FFTF) represented approximately 38 Ci of this total. These data are summarized in Tables 1, 2, and 3.

Nonradioactive airborne emissions from the 384 Powerhouse remained within regulatory limits. The only other potential source of significant nonradioactive airborne emissions are the Defense Reactor Fuel Fabrication Facilities located in the 300 Area. However, these facilities were shut down in 1987 and, therefore, were not a significant emission source. The fuel fabrication facilities are currently in cold standby. There are a number of nonradioactive liquid effluent streams located in the 300 and 400 Areas. Of these, only the 300 Area process sewer system has a significant potential for the release of chemical contaminants to the environment. The other liquid effluent streams (e.g., the sanitary waste systems or the water treatment plant filter backwash) are single purpose, adequately characterized, and not significantly threatened by chemical contaminants.

Table 1. The 300 Area Combined Airborne Effluent Release Summary.

Alpha emitters	
Total number of points reported	7
% ACV	6.0
Total release (Ci)	6.6 E-07
Beta emitters	
Total number of points reported	4
% ACV	0.049
Total release (Ci)	1.2 E-06
Iodine	
Total number of points reported	2
% ACV	0.033
Total release (Ci)	5.6 E-06

ACV = Administrative control value. PST89-2196-1

Table 2. The 400 Area Combined Airborne Effluent Release Summary.

Beta emitters	
Total number of points reported	4
% ACV	0.27
Total release (Ci)	2.0 E-05
Iodine	
Total number of points reported	1
% ACV	0.0087
Total release (Ci)	1.0 E-05
Noble gases	
Total number of points reported	1
% ACV	NA
Total release (Ci)	3.8 E+01

ACV = Administrative control value. PST89-2196-2
NA = Not applicable.

Table 3. The 300 Area Process Trench Effluent Release Summary.

Alpha emitters	
% ACV	22
Total release (Ci)	3.6 E-02
Beta emitters	
% ACV	21
Total release (Ci)	7.7 E-02

ACV = Administrative control value. PST89-2196-3

The 300 Area Process Sewer System serves a large number of 300 Area facilities, which include a number of research and development facilities that use a wide variety of chemicals. The 300 Area Process Sewer System also serves the Defense Reactor Fuel Fabrication Facilities, 384 Powerhouse, and a number of fabrication and maintenance shops. For this reason, an extensive sampling and analysis program is in place for the 300 Area Process Sewer System. Data summarizing discharges to the 300 Area Process Sewer are presented in Section 5.4 of this document.

The 1100 Area contains central stores, warehouses, and vehicle maintenance facilities. Radioactive work is not performed in the 1100 Area.

2.0 INTRODUCTION

Westinghouse Hanford became the Operations and Engineering contractor for the Hanford Site in June of 1987 as a result of contractor consolidation. As a consequence of the consolidation, Westinghouse Hanford acquired some 300 Area facilities previously operated by UNC Nuclear Industries, Inc., and all 1100 Area facilities, which were previously operated by Rockwell Hanford Operations.

Westinghouse Hanford uses ACVs to manage releases to the environment. The ACV is used to ensure that such releases meet any Federal, state, or local regulation prescribed by either the U.S. Department of Energy-Richland Operations Office (DOE-RL) or Westinghouse Hanford.

Within the 400 and 1100 Areas, all facilities are operated by Westinghouse Hanford. In the 300 Area, many major facilities are operated by PNL. Although the facilities are operated by PNL, Westinghouse Hanford, as landlord, provides liquid waste disposal facilities.

Brief descriptions of some of the major Westinghouse Hanford facilities in the 300, 400, and 1100 Areas are provided below.

- <u>306-E Fabrication and Testing Laboratory</u>. This facility houses three separate operations. A large, high bay is used for nonfueled test article fabrication for the FFTF. Nondestructive examination uses a series of shielded cells for radiography. A small, depleted uranium powder laboratory was used to fabricate insulator pellets for the FFTF fuel pins. The powder laboratory has been shut down and is being cleaned.

- <u>308 Fuels Development Laboratory</u>. The 308 facility was used to fabricate the mixed-oxide fuel pins used by the FFTF. The facility houses a Test Reactor and Isotope Production, General Atomics (TRIGA) swimming pool reactor used for neutron radiography of the completed pins. Mixed-oxide fuel operations have been discontinued. Work with metal fuel is currently in progress.

- <u>309 Plutonium Recycle Test Reactor</u>. The containment dome and support facilities once contained the Plutonium Recycle Test Reactor (PRTR).

  The facility was shut down and the reactor defueled in the late 1960s. Work is presently in progress to refurbish the facility to house the SP-100 space reactor.

- <u>340 Complex</u>. The 340 complex houses the radioactive liquid waste and solid waste handling capabilities for the 300 Area. An underground vault houses two 15,000-gal neutralization tanks. The 340 building provides a control room and decontamination facility. The 340-A building contains six aboveground liquid radioactive waste storage tanks. The 340-B building is divided lengthwise by a concrete shield wall. The east side of the building contains the railcar loadout facility for the transfer of liquid waste to the 200 Area. The west side is a storage area for radioactive waste.

- <u>Defense Reactor Fuel Fabrication Facilities</u>. The Defense Reactor Fuel Fabrication Facilities are located in the 300 Area. The facilities are located in Buildings 303, 304, 311, 313, 333, 334, 3701, 3707, 3710, 3712, 3713, 3716, 3717, and 3734. These facilities are being placed in cold standby.

- <u>PNL Operated Major 300 Area Facilities</u>. The 308-W Metal Fabrication Development Building, 320 Low Level Radiochemistry, 323 Metals Creep Laboratory, 324 Chemical Engineering Laboratory, 325 Radiochemistry, 326 Materials Technology, 327 Post Irradiation Testing, 329 Biophysics, 331 Life Sciences, and 3730 Gamma Neutron Irradiation are the major PNL-operated 300 Area facilities.

- <u>Fast Flux Test Facility</u>. The FFTF, which is located in the 400 Area, is a 400-MW thermal, sodium-cooled, low-pressure, high-temperature reactor plant. The plant was designed and constructed for irradiation testing of breeder reactor fuels and materials.

- 437 Maintenance and Storage Facility. The Maintenance and Storage Facility (MASF) is a multipurpose service center that supports the specialized maintenance and storage requirements of the FFTF. The MASF provides the capability for sodium film removal, decontamination, repair, and storage of nonfueled components and hardware for the FFTF.
- 1100 Area Facilities. Major facilities located in the 1100 Area include the 1163 Main Warehouse, and the 1171 Main Shop Building.

3.0 AIRBORNE RADIOACTIVE EFFLUENT SAMPLING PROGRAM

3.1 GENERAL

Westinghouse Hanford operates an extensive airborne radioactive effluent sampling program. Sampling is performed if the annual average release from a stack could exceed 10% of the ACV. As a matter of policy, Westinghouse Hanford obtains samples from a number of release points not specifically requiring sampling in accordance with these criteria. Such samples are collected to monitor operations within the facility and to better characterize releases to the environment.

The ACV for airborne radioactive effluent releases limited the average annual concentration to the Derived Concentration Guide for the Public (DCG-Public) at the point of release to the environment. An ACV is not specified for noble gas releases. Noble gases are not incorporated into the body and, therefore, the limiting factor becomes the dose to the skin.

The FFTF is the only Westinghouse Hanford facility located in the 300 or 400 Area that releases noble gases to the environment. There are no airborne radioactive effluents associated with operations in the 1100 Area.

When more than one radionuclide was present, the unity rule is applied. For the unity rule, the sum of the ratios of the total alpha, total beta, radioiodine, and noble gas concentrations are divided by their respective ACVs, and the sum of the ratios must be less than or equal to one.

3.2 SAMPLING AND ANALYSIS PROGRAM

Airborne radioactive effluents are continuously sampled by passing a known volume of air (normally 1.5 ft^3/min) through a particulate filter and, if required, through a charcoal cartridge. These samples are collected each week by Operational Health Physics and delivered to PNL Chemistry and Analysis. The particulate filters are analyzed by PNL for total alpha and total beta. The charcoal cartridges are analyzed for iodine-131 using gamma spectroscopy.

The approximate minimum detection level (MDL) for the various analyses are as follows:

- Gross alpha--1.3 x 10^{-15} $\mu Ci/cm^3$
- Gross beta--3.0 x 10^{-15} $\mu Ci/cm^3$
- Iodine-131--4.8 x 10^{-14} $\mu Ci/cm^3$.

A specific radioisotope analysis of discharges from the 300 and 400 Area facilities is not performed for the following reasons.

1. The release concentrations are small compared to the ACV, even when the most restrictive nuclides (i.e., plutonium-239, strontium-90, and iodine-131) are assumed to be present.
2. At such low concentrations, isotopic identification is both difficult and expensive.

3.3 TABULAR DATA

Tables 4 and 5 summarize the radioactive airborne release data for CY 1988 for both 300 and 400 Area Westinghouse Hanford facilities. Effluent samples were not collected for 300 Area Defense Reactor Fuel Fabrication Facilities because these facilities were not in operation. There are no radioactive airborne emission sources located in the 1100 Area.

4.0 NONRADIOACTIVE AIRBORNE EMISSIONS

The major sources of nonradioactive airborne emissions are the 384 Powerhouse and the 1166 Heating Plant. A potential source of significant nonradioactive airborne emissions are the Defense Reactor Fuel Fabrication Facilities. However, these facilities were not in operation in CY 1988 and are presently being placed in cold standby.

The 384 Powerhouse, which is located in the 300 Area, uses oil and coal-fired boilers to produce process and heating steam. Boilers 2 and 6 are oil-fired units rated at 125 and 100 M Btu/h, respectively. Boilers 3, 4, and 5 are spreader-stoked, coal-fired units rated at 48 M Btu/h each. The coal-fired boilers employ a fabric filter collection system that reduces particulate emission levels.

Fossil-fueled heating plants are located in the 1166 Central Stores Warehouse, 1170 Dispatchers Office, and 1171 Main Shop Building. Emissions from these heating plants are insignificant when compared to emissions from the 384 Powerhouse.

Emissions from both the 384 Powerhouse and 1166 Heating Plant are calculated annually and reported to both DOE-RL and the Benton-Franklin-Walla Walla Counties Air Pollution Control Authority. Emission data for CY 1988 are summarized in Tables 6 and 7.

Table 4. The 300 Area Radioactive Airborne Effluent Release Data for Calendar Year 1988.

Facility (exhaust flow)	Assumed isotope	ACV (µCi/cm^3)	Highest weekly concentration (µCi/cm^3)	Average concentration (µCi/cm^3)	Total curies discharged
306-E Fabrication and Testing Laboratory					
Uranium laboratories exhaust (3,200 ft^3/min)	^{238}U	1.0 E-13	2.2 E-15	1.5 E-15	6.9 E-08
308 Plutonium Fuels Laboratory					
Glovebox exhaust (2,700 ft^3/m)	^{239}Pu	2.0 E-14	1.7 E-15	1.4 E-15	5.6 E-08
Etch and clean facility exhaust (6,150 ft^3/min)	^{239}Pu	2.0 E-14	3.9 E-15	1.4 E-15	1.3 E-07
TRIGA reactor exhaust (1,730 ft^3/m)	^{239}Pu ^{90}Sr ^{131}I	2.0 E-14 9.0 E-12 4.0 E-10	1.5 E-15 3.7 E-15 <4.6 E-14	1.4 E-15 3.0 E-15 5.0 E-14	3.8 E-08 9.6 E-08 1.3 E-08
309 Plutonium Recycle Test Reactor					
Containment exhaust (7,000 ft^3/min)	^{239}Pu ^{90}Sr	2.0 E-14 9.0 E-12	2.2 E-15 1.3 E-14	1.5 E-15 4.0 E-15	1.5 E-07 4.0 E-07
340 Radioactive Waste Handling Facilities					
Neutralization tank and vault exhaust (1,100 ft^3/min)	^{239}Pu ^{90}Sr ^{131}I	2.0 E-14 9.0 E-12 4.0 E-10	2.3 E-15 6.6 E-15 1.0 E-11	1.4 E-15 3.6 E-15 2.7 E-13	2.3 E-08 5.8 E-08 4.3 E-06
Decontamination facility exhaust (8,500 ft^3/min)	^{239}Pu ^{90}Sr	2.0 E-14 9.0 E-12	2.6 E-15 6.4 E-15	1.0 E-15 2.7 E-15	2.0 E-07 6.2 E-07

ACV = Administrative control value.

PST89-2196-4

Table 5. The 400 Area Radioactive Airborne Effluent Release Data for Calendar Year 1988.

Facility (exhaust flow) (ft^3/min)	Assumed isotope	ACV ($\mu Ci/cm^3$)	Highest weekly concentration ($\mu Ci/cm^3$)	Average concentration ($\mu Ci/cm^3$)	Total curies discharged
Fast Flux Test Facility					
Combined Exhaust (24,150)	^{90}Sr ^{85}Kr ^{131}I ^{41}Ar	9.0 E-12 N/A 4.0 E-10 N/A	2.6 E-14 1.1 E-08 4.5 E-14 1.8 E-07	4.3 E-14 8.5 E-10 3.5 E-14 1.0 E-07	1.5 E-05 7.6 E-01 1.0 E-05 3.8 E+01
Lower Reactor Service Building (12,600)	^{90}Sr	9.0 E-12	5.7 E-14	2.7 E-14	4.0 E-06
Heat Transport System - South (4,175)	^{90}Sr	9.0 E-12	8.4 E-14	2.3 E-14	1.4 E-06
437 Maintenance and Storage Facility (16,000)	^{90}Sr	9.0 E-12	7.7 E-15	2.6 E-15	6.0 E-07

ACV = Administrative control value.

PST89-2196-5

Table 6. The 384 Powerhouse Airborne Emission Data for Calendar Year 1988.

Particulate	13 tons
Carbon monoxide	20 tons
Hydrocarbons	10 tons
Oxides of nitrogen	150 tons
Sulfur dioxide	270 tons

PST89-2196-6

Table 7. The 1100 Area Heating Plant Airborne Emission Data for Calendar Year 1988.

Particulate	0.6 tons
Carbon monoxide	0.1 tons
Hydrocarbons	0.0075 tons
Oxides of nitrogen	3.0 tons
Sulfur dioxide	1.9 tons

PST89-2196-7

5.0 LIQUID EFFLUENTS SAMPLING PROGRAM

5.1 GENERAL

Both the 300 and 400 Areas release liquid effluents to the environment. The liquid effluent streams associated with the 300 Area are as follows:

- 300 Area Process Sewer
- 300 Area Sanitary Waste System
- 315 Waste Treatment Plant filter backwash
- 384 Powerhouse ash sluicing.

The liquid effluent streams associated with 400 Area operations are as follows:

- 400 Area Process Sewer
- 400 Area Sanitary Waste System
- 400 Area drywells.

Westinghouse Hanford established the following ACVs to govern liquid effluent releases to the environment.

- The concentration of chemicals and contaminants discharged to groundwater should not exceed the Maximum Contaminant Level (MCL) values at the point of release.
- The pH of all liquid effluents discharged to the environment shall not be less than or equal to 2.0 or greater than or equal to 12.5.
- Releases in excess of the reportable quantity (RQ) limits of CERCLA shall be promptly reported.
- The annual average concentration of radionuclides in the 300 Area Process Sewer shall not exceed 0.2 times the DCG at the point of release to the environment.
- The annual average concentration of radionuclides in the 400 Area Process Sewer shall not exceed 0.04 times the DCG at the point of release to the environment.

The higher fractional DCG value permitted for the 300 Area reflects the research and development nature of the 300 Area facilities.

Brief descriptions of the various liquid effluent streams are as follows.

- 300 Area Process Sewer System. The 300 Area uses a process sewer system to collect and dispose of nonradioactive, nonhazardous liquid wastes from the various 300 Area facilities. These wastes are disposed of in either of two, parallel 1,500-ft-long trenches located north of the 300 Area. The waste water percolates to groundwater and then moves laterally to the Columbia River. The process sewer system flow in CY 1988 averaged about 1.2 Mgal/d or about 430 Mgal/yr.

- 300 Area Sanitary Waste System. The 300 Area sanitary waste system processes about 300,000 gal/d of sanitary waste. A portion of the water processed by this system is air conditioner cooling water, principally from the 325, 326, and 328 Buildings' air conditioning systems. The waste water flows through a series-parallel septic tank arrangement and is disposed of in either of two 1,000-ft long trenches located northeast of the 300 Area. Construction of a new sewage treatment plant is scheduled for CY 1990.

- 315 Water Treatment Plant Filter Backwash. The 315 Water Treatment Plant periodically backwashes filters to remove sediment. From 1975 until January 1987, the filter backwash was routed to a portion of the south process pond. From January 7 to April 14, 1987, these wastes were trucked to an inactive gravel pit that is located west of the 300 Area for disposal. On April 14, 1987, the new filter backwash pond was placed in operation. The pond receives about 20 Mgal/yr of water containing sediment and alum. Analysis of the backwash has shown it to be nonhazardous.

- 384 Powerhouse Ash Sluicing. The 384 Powerhouse periodically sluices fly ash to ash disposal pits located on the east side of the 300 Area. Fly ash does not contain hazardous materials in leachable concentration or quantities. The normal flow rate is approximately 15 Mgal/yr.

- 400 Area Process Sewer. The 400 Area Process Sewer disposes of waste water in a process pond located to the north of the 400 Area. Flow in the system is low, about 10 to 15 gal a min. A major contributor to the 400 Area Process Sewer is the FFTF cooling tower.

- 400 Area Sanitary Waste System. The 400 Area disposes of sanitary wastes by a package sewage treatment plant and lagoon. Flow through the system averages 15,000 gal/d.

- 400 Area Drywells. A series of 15 drywells is located within the 400 Area. Ten of these drywells are associated with the FFTF, the remainder serve various other 400 Area facilities. Total flow to the 400 Area drywells is several thousand gallons per year.

In the 1100 Area, with the exception of waste water from the engine steam cleaning facility at the Bus Maintenance Shop, waste water is discharged to the City of Richland public-owned treatment work (POTW). The volume of steam engine cleaning waste water collected in CY 1988 was 4.4 E+04 gal. This waste water was transported to the 2701-E1 septic tank/subsurface disposal system in the 200 East Area.

Any discharge of industrial waste water to the POTW that is a significant industrial discharge is prohibited, except under a permit issued by the City of Richland. A significant industrial discharge is one of the following:

- A discharge subject to the national pretreatment standards promulgated under Section 307(b) or (c) of the Clean Water Act
- A discharge with any priority toxic pollutants listed in 40 CFR Part 403
- A discharge with toxic pollutants as defined according to Section 307 of the Clean Water Act
- A discharge flow of 40,000 gal or more per average workday
- A flow greater than five percent of the flow in the POTW
- A discharge determined by the City to have a significant impact on the POTW.

During CY 1988, Westinghouse Hanford did not discharge waste water to the POTW that qualified as a significant industrial discharge. Therefore, a waste discharge permit was not required.

5.2 SAMPLING AND ANALYSIS PROGRAM

The liquid effluent sampling program in the 300 Area is mainly concerned with the 300 Area process sewer system. The variety of activities and wide range of chemical and radioactive materials present in the area require an extensive sampling and analytical program. Composite samples from the 300 Area process trench header box are collected and analyzed each week for radioactivity and a broad spectrum of chemical constituents.

A network of ten close-in automatic sampling stations was installed on the various legs of the process sewer system during CY 1988. This network is not yet operational.

Each week, as a part of the 300 Area routine sampling program, a composite sample of the 300 Area Sanitary Waste System is collected. This sample is analyzed for both gross alpha and gross beta activity. During 1988, the 300 Area did not receive radioactive materials in excess of the minimum detection levels of 20 pCi/L alpha and 40 pCi/L beta.

Each week the 300 Area Sanitary Waste System is continuously sampled and analyzed for gross alpha and gross beta activity. Other types of analyses are not presently being performed. In the past, analyses comparable to those performed on the 300 Area Process Sewer were also performed on the 300 Area Sanitary Waste System. A review of these data indicated the 300 Area Sanitary Waste System does not receive regulated materials.

There is no routine sampling of the 315 Water Treatment Plant filter backwash and 384 Powerhouse ash sluicing operations. These waste streams do not contain regulated materials, and there is no significant potential for them to receive regulated materials.

Discharges to the FFTF drywells are routinely sampled and analyzed in the 400 Area. At the FFTF, the liquid wastes (principally condensate and water softener waste) are collected in sumps. The sumps are sampled and the samples are then analyzed for a variety of chemical constituents. After verification that the sump liquid complies with the appropriate ACVs, the liquid is pumped to a drywell.

Quarterly grab samples are obtained from the 400 Area Process Pond. Composite sampling of this effluent release point was implemented in January 1989.

5.3 LEAD RELEASE TO THE 300 AREA PROCESS SEWER

On May 25, 1988, the Environmental Protection Group was notified by the analytical laboratory that an abnormally high value of lead was present in the 300 Area Process Trench composite sample. The sample, collected during the period May 17 to 24, 1988, contained lead at a concentration of 150 μg/L. With a process sewer flow rate of 8.7 E+06 gal/wk, approximately 10 lb of lead was discharged during that period.

The analytical laboratory personnel had already verified proper operation of their equipment. Environmental Protection requested the sample be reanalyzed to confirm the presence of lead. Environmental Protection also contacted facility personnel in facilities discharging to the system to locate the source of the lead. The sampling equipment was checked for lead contamination. No such contamination was present. This discharge exceeded the RQ limits of CERCLA and was promptly reported as required. The composite sample for the following week, May 24 to 31, 1988, also contained higher than normal values of lead. However, the quantity did not exceed the RQ limits of CERCLA. Although an extensive investigation was performed, the source of the lead was never identified.

5.4 TABULAR DATA

Table 8 summarizes the liquid effluents released via the 300 Area Process Sewer System during CY 1988.

6.0 REFERENCES

EPA, 1988, *General Pretreatment Regulations for Existing and New Sources of Pollution*, 40 CFR Part 403, U.S. Environmental Protection Agency, Washington, D.C.

Clean Water Act of 1977, Public Law 95-217, 92 (Stat.) 1566, 33 USC 125.

Table 8. The 300 Area Process Sewer Analytical Summary for Calendar Year 1988.

Analysis	Minimum	Maximum	Average	ACV	Release (lb/yr)
Gross alpha (pCi/L)	<20	53	22	120	NA
Gross beta (pCi/L)	<40	63	42	200	NA
pH	7.30	9.22	8.15	2.0 to 12.5	NA
TOC (p/m)	0.9	6.4	3.3	NA	12,000
TOX (p/b)	48	106	78	NA	280
POX (p/b)	1.0	7.0	3.2	NA	12
Perchloroethylene (p/b)	<2	2	2	NA	8
Trichloroethane (p/b)	<2	2	2	200	8
Methylene chloride (p/b)	<2	7	2	NA	8
Chloroform (p/b)	<2	14	4.2	NA	15
Arsenic (μg/L)	<3	<3	<3	50	12
Barium (μg/L)	7	71	33	1,000	120
Cadmium (μg/L)	<1	7	2	10	8
Chromium (μg/L)	<1	34	4	50	13
Copper (μg/L)	3	150	25	1,000	100
Lead (μg/L)	1	150	10	50	35
Mercury (μg/L)	<0.1	1.5	0.3	2.0	1
Sodium (mg/L)	4.1	86.3	20	NA	72,000
Selenium (μg/L)	<3	<3	<3	10	12
Silver (μg/L)	<1	5	2	50	8
Uranium (μg/L)	3	44	10	NA	36
Chloride (mg/L)	1	122	28	250	100,000
Fluoride (mg/L)	0.11	0.33	0.21	2.0	770
Nitrite (mg/L)	<0.2	0.2	0.2	NA	800
Nitrate (mg/L)	0.4	3.5	1.6	45	5,900
Sulfate (mg/L)	5	23	19	250	69,000

ACV = Administrative control value.
NA = Not applicable.

PST89-2196-8

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F.M. Coony	T1-30	J.P. Newman	N2-04
S.H. Crow	N2-05	J.J. O'Conner	L6-52
N.R. Dahl	N2-04	R.A. Paasch	H4-52
C. Defigh-Price	H4-52	A.D. Poor	G4-11
L.P. Diediker	T1-30	D.L. Powell	L4-32
J.J. Dorian	H4-15	P.R. Prevo	N1-73
T.N. Draper	L6-54	D.J. Rokkan	X0-21
G.A. Duffield	L6-60	J.A. Serkowski	H4-56
F.W. Ellis	L6-53	R.N. Smith	N2-50
D.L. Flyckt	R2-20	J.M. Steffen	N1-40
K.A. Gano	X0-21	D.D. Stepnewski	N1-31
R.G. Gant	L6-18	D.J. Swaim	N2-34
D.S. Gleason	N1-58	M.D. Talbot	N2-30
E.M. Greager	L6-60	M.E. Thurman	L6-40
D.O. Hess	R3-20	B.L. Vedder	H4-50
J.D. Hoover	H4-57	E.A. Weakley	L6-28
I.D. Jaques	L6-60	D.E. Webb	R3-20
L.E. Jordan	L8-03	J.C. Wiborg	L4-75
F.M. Jungfleisch	R2-20	S.A. Weigman	H4-50
R.E. Lerch	H4-51	K.L. Young	N1-40
		Central Files	L8-04
		Publication Services (4)	L8-07