



# Georgia Institute of Technology

NEELY NUCLEAR RESEARCH CENTER  
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August 3, 1995

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Georgia Institute of Technology  
License No. R-97. Docket No. 50-160  
Reply to a Notice of Violation  
Inspection Report No. 50-160/95-01

Gentlemen:

Pursuant to 10 CFR 2.201, please find attached a response to a Notice of Violation in Inspection Report No. 50-160/95-01.

Should you have any questions, please call me at (404) 894-3600.

Sincerely,

R.A. Karam, Ph.D., Director  
Neely Nuclear Research Center

FAK/dmcg  
Enclosure

cc: Mr. S. Ebnetter  
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Attachment No. 1

Georgia Institute of Technology  
Reply to Notice of Violation 50-160/95-01

Violation 50-160/95-01-01, Severity Level IV (Supplement IV)

"10 CFR 50.9 requires that information provided to the Commission by a licensee shall be complete and accurate in all material respects.

"TS 6.7.a.(6)(a) requires the licensee to submit an annual operating report detailing the quantities of gaseous radioactive effluents released from the plant, including what percent the releases represent of the limit specified in the Technical Specification.

TS 6.7.a(6)(b) requires the licensee to submit an annual operating report outlining the quantities of liquid radioactive effluents released from the plant including: 1) the total amount of gross radioactivity ( $\beta\gamma$ ) released (in curies) excluding tritium, 2) the average concentration of gross radioactivity ( $\beta\gamma$ ) released to the unrestricted area or sanitary sewer (averaged over the period of the release), 3) the maximum concentration of gross radioactivity ( $\beta\gamma$ ) released to the unrestricted area, and 4) the total radioactivity (in curies) and concentration (averaged over the period of release) by nuclide released, based on representative isotopic analyses performed for any release which exceeds  $1E-7$  microcuries per milliliter."

"Contrary to the above:

1. The annual reports submitted by the licensee to the NRC which described operations during the years 1983, 1986, and 1988 through 1993 did not contain some of the above specified data and/or contained incorrect or inaccurate data in that:

a. With respect to incorrect or inaccurate data:

(1) The average concentrations listed for total gross radioactivity ( $\beta\gamma$ ) released were inaccurate for 1983 and 1986.

(2) Some or all of the concentration(s) listed for "Avg Release Rate" were inaccurate for:

(a) Tritium for 1988, and

(b) Gross radioactivity ( $\beta\gamma$ ) for 1990, 1992, and 1993.

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- (3) The total number of curies listed was inaccurate for:
    - (a) Tritium for 1988 and 1989, and
    - (b) Gross radioactivity ( $\beta\gamma$ ) for the years 1990 and 1992.
  - b. With respect to gross radioactivity ( $\beta\gamma$ ):
    - (1) There was no average concentration listed for the total amount released for 1988 and 1989;
    - (2) There was no total amount listed in curies for the years 1988 and 1989; and
    - (3) There was no maximum concentration of gross radioactivity ( $\beta\gamma$ ) released to the unrestricted area or sanitary sewer listed for the years 1988 through 1993.
  - c. The percent of the Technical Specification limit represented by the maximum instantaneous concentration of gaseous releases was not listed in the 1993 annual report.
2. The licensee failed to provide complete and accurate information to the Commission, in that, equipment for continuous, automatic measurement and recording of wind speed and direction was no longer installed contrary to what the Safety Analysis Report (SAR) for the 5 MW Georgia Tech Research Reactor, dated April, 1994, indicated."

REPLY

1. Admission or denial of violation:

The Georgia Institute of Technology (GIT) admits that inadvertent arithmetical and/or typographical errors were made in some of the data contained in annual reports submitted to NRC between 1983 and 1994. For example, in the Annual Report for Calendar Year 1983, GIT reported under paragraph 6.1.b an average concentration of  $3.7 \times 10^{-7}$  microcuries per milliliter for total gross radioactivity ( $\beta\gamma$ ). In the report details of subject inspection report

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(page 3) it is stated that the amount (average concentration for total gross radioactivity ( $\beta, \gamma$ )) should have been  $4.3 \times 10^{-7}$  microcuries per milliliter. The difference between GIT's number of  $3.7 \times 10^{-7} \mu\text{Ci/ml}$  and NRC's number of  $4.3 \times 10^{-7} \mu\text{Ci/ml}$  is one example of information provided to NRC that is not complete and not accurate in all material respects.

In order to verify which number is correct, GIT carefully reviewed the historical data for calendar years 1983 through 1994. The data were incorporated into a data base system on a personal computer. The quantities required by the Technical Specifications were generated on the pc. The quantity obtained for 1983 by this method for the average concentration for total gross radioactivity ( $\beta, \gamma$ ) is  $3.88 \times 10^{-7} \mu\text{Ci/ml}$ .

For 1986 GIT reported  $5.9 \times 10^{-7} \mu\text{Ci/ml}$  for the yearly average total gross radioactivity ( $\beta, \gamma$ ). The NRC's number is  $6.1 \times 10^{-7} \mu\text{Ci/ml}$ . The data base number generated recently by the pc is  $5.58 \times 10^{-7} \mu\text{Ci/ml}$ .

The NRC inspections and findings with respect to errors in the Annual Reports for 1988 - 1993 were thorough and substantially correct.

2. The reasons for the violation:

The generation of the quantities required in the Annual Reports involves numerous mathematical operations and manipulations utilizing inordinate volume of data. Until recently, these operations have been performed by individuals using hand calculators. Human error is the primary reason for the error.

Additionally, a contributing factor to all of this is the fact that GIT has had several turnovers in the position of Manager, Office of Radiation Safety (MORS). In theory, the turnovers should not impact GIT's responsibilities under the license. In reality it does. Because we hired highly qualified professionals for the MORS position, it was taken for granted that these professionals' contributions to the annual report did not require detailed scrutiny. A certain amount of on-the-job training is needed to make sure that

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accuracy and consistency are observed. This lack of training led to failure in quality assurance and quality control.

The person ultimately responsible for this failure is the Director of the facility under whose name the annual report is transmitted to the NRC.

3. Corrective steps which have been taken and results achieved:

GIT created a computer data base for liquid waste discharge that includes all the historical data from 1983 forward. The data base includes software that calculates parameters required in the annual report by the technical specifications.

Attachment II lists all the data and results from 1983 forward.

4. Corrective steps which will be taken to avoid further violations:

A computer data base for gaseous releases will be established before the end of 1995. The Safety Analysis Report dated April, 1994, will be revised deleting the statement: "Equipment for continuous, automatic measurement and recording of windspeed and direction..." This SAR is currently being evaluated by NRC Headquarters.

5. Date when full compliance will be achieved:

Full compliance with all items in violation 50-160/95-01-01, except for the erroneous statement in SAR p. 101 dated April, 1994, will be achieved by the end of 1995. The removal of the erroneous statement from the SAR will be coordinated with other changes now being negotiated with NRC Headquarters as part of the license renewal process, possibly before 1995 ends.

Violation 50-160/95-01-04 Severity Level V (Supplement IV)

"Technical Specification 6.4.a requires that all procedures and major changes thereto shall be reviewed and approved by the Nuclear Safeguards Committee prior to being effective.



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"Technical Specification 6.4.b stipulates that written procedures shall be provided and utilized for various operations including radiation and radioactive contamination control.

"Contrary to the above, the licensee failed to have a procedure approved by the Nuclear Safeguards Committee for operation and calibration of a low background alpha/beta proportional counter used for contamination control and effluent measurements from approximately September 1993 to present."

REPLY

1. Admission or denial of violation:

The Georgia Institute of Technology admits the violation as stated.

2. The reason for the violation:

Prior to September 1993, the Neely Nuclear Research Center used an "old" Beckman low background  $\alpha/\beta$  counting system for effluent measurements. This system was so old that maintaining it operational was a problem. Procedure 9054 was written and approved specifically for the Beckman system calibration.

In 1993 GIT purchased state-of-the-art system, the Tennelec LB-5100 to replace the "old" Beckman system. This new system comes from the manufacturer with detailed and complete calibration and operating procedure. The manufacturer's procedures have been used to calibrate the system with appropriate NIST standards. It is not that the new counting system was not calibrated properly, it is that the counting system was calibrated with procedures not approved by the Nuclear Safeguards Committee. NNRC staff and management overlooked that procedure in manuals must be extracted and approved by NSC.

3. Corrective steps which have been taken and results achieved:

Procedure 9160 - Calibration of the LB5100-W Counting System has been written. It was approved by the Nuclear Safeguards Committee on 7/20/95.

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The staff and management have been counseled about the need to have all procedures approved by NSC.

4. Corrective steps which will be taken to avoid further violations:

None.

5. Date when full compliance will be achieved:

Full compliance was achieved 7/20/95.

ATTACHMENT II

LIQUID WASTE DISCHARGES



## LIQUID WASTE DISCHARGES OF 1994

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1994	1 st	2/18/94	4.96E-09	9.01E-06	1.93E-07	3200	0.060	109.129	2.338
			4.87E-09	7.01E-06	4.38E-07	2100	0.039	55.751	3.481
		3/17/94	2.92E-08	1.20E-05	3.27E-07	2600	0.287	118.289	3.218
	2 nd	5/6/94	1.95E-08	1.13E-05	3.85E-07	2600	0.192	111.203	3.784
			4.88E-09	1.92E-05	3.81E-07	2600	0.048	189.242	3.749
			9.77E-09	1.65E-05	2.55E-07	2200	0.081	137.146	2.123
		6/10/94	4.90E-09	6.73E-05	4.76E-07	3700	0.069	942.503	6.666
			4.90E-09	4.05E-05	4.28E-07	1500	0.028	229.768	2.430
		6/24/94	4.70E-09	3.45E-05	4.44E-07	2800	0.050	365.631	4.706
			9.40E-09	5.20E-05	4.24E-07	2200	0.078	433.004	3.531
	3 rd	7/7/94	1.45E-08	5.71E-05	4.93E-07	3900	0.213	842.882	7.277
			2.41E-08	6.25E-05	5.06E-07	1400	0.128	331.188	2.681
			9.37E-09	4.43E-05	5.44E-07	9000	0.319	1509.080	18.531
		7/18/94	4.68E-09	3.77E-05	5.85E-07	5518	0.098	787.388	12.218
			1.40E-08	3.51E-05	5.90E-07	2700	0.143	358.704	6.030
			2.33E-08	3.30E-05	6.13E-07	2300	0.203	287.282	5.336
		8/5/94	2.85E-08	3.31E-05	5.87E-07	2600	0.280	325.737	5.777
			1.90E-08	1.65E-05	6.18E-07	2400	0.173	149.886	5.614
			4.96E-09	1.37E-05	4.24E-07	3700	0.069	191.862	5.938
		8/22/94	1.99E-08	4.00E-05	2.65E-07	1400	0.105	211.960	1.404
			5.00E-08	6.82E-05	4.25E-07	2100	0.397	542.088	3.374
			2.00E-08	6.85E-05	3.27E-07	900	0.068	233.209	1.114
		9/22/94	9.66E-09	4.39E-05	4.09E-07	3100	0.113	515.101	4.793
			5.31E-08	4.82E-05	2.95E-07	2200	0.442	400.945	2.456
	4 th	12/1/94	2.41E-08	4.73E-05	3.88E-07	3800	0.347	679.597	5.581
			9.18E-08	4.13E-05	2.72E-07	1300	0.451	203.217	1.338

# LIQUID WASTE DISCHARGES OF 1994

7/18/95

Dilution factor (cc/Qtr) = 2.505E+11

## Total Activity Released / Quarter for 1994

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	0.5774	394.3720	12.8209
2nd QTR	0.3539	2297.2944	23.2051
3rd QTR	2.7529	6687.3100	82.5445
4th QTR	0.7981	882.8134	6.9190

Yearly Total =	4.4822	10261.7898	125.4895
Yearly Total (Ci) =	4.482E-06	1.026E-02	1.255E-04
AVG Yearly			
Conc. $\mu$ Ci/cc =	1.604E-08	3.673E-05	4.491E-07
Tech Spec			
$\mu$ Ci/cc =	3.000E-06	1.000E-02	3.000E-05

% Tech Spec =	0.53	0.37	1.50
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## Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	1.05000E+04	3.97425E+07
2nd QTR	1.50000E+04	5.67750E+07
3rd QTR	4.32180E+04	1.63580E+08
4th QTR	5.10000E+03	1.93035E+07

Yearly Total =	7.382E+04	2.794E+08
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NOTE: Total Alpha radioactivity released and average Concentration released is < MDA

NOTE: New limits for Co-60 and H-3. New limits are based on the New 10 CFR 20.

## Quarterly Average Released Based on the Ga Tech Dilution factor for 1994

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	2.305E-12	1.574E-09	5.118E-11
2nd QTR	1.413E-12	9.171E-09	9.264E-11
3rd QTR	1.099E-11	2.670E-08	3.295E-10
4th QTR	3.186E-12	3.524E-09	2.762E-11

## Quarterly Average Released Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	1.45273E-08	9.92318E-06	3.22600E-07
2nd QTR	6.23347E-09	4.04631E-05	4.08720E-07
3rd QTR	1.68290E-08	4.08809E-05	5.04612E-07
4th QTR	4.13441E-08	4.57333E-05	3.58431E-07

## Maximum quarterly Concentration

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	2.916E-08	1.202E-05	4.380E-07
2nd QTR	9.770E-09	6.730E-05	4.760E-07
3rd QTR	5.312E-08	6.846E-05	6.180E-07
4th QTR	9.175E-08	4.725E-05	3.880E-07

## LIQUID WASTE DISCHARGES OF 1993

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1993	1 st	1/11/93	9.570E-09	3.870E-05	2.920E-07	3900	0.1413	571.2701	4.3104
			4.780E-09	4.170E-05	5.405E-07	1100	0.0199	173.6180	2.2504
		1/14/93	8.840E-08	9.440E-05	5.440E-07	2700	0.9034	964.7208	5.5594
	2 nd	3/5/93	4.910E-09	9.435E-05	5.120E-07	1400	0.0260	499.9607	2.7131
			4.880E-09	1.577E-05	4.980E-07	3800	0.0702	226.8199	7.1627
		5/6/93	1.952E-08	1.876E-05	5.090E-07	1500	0.1108	106.5099	2.8898
			1.214E-08	1.600E-05	5.180E-07	3500	0.1608	211.9600	6.8622
		6/11/93	4.650E-09	1.365E-05	4.975E-07	1400	0.0246	72.3314	2.6363
			6.050E-09	3.495E-05	4.110E-07	3600	0.0824	476.2287	5.6003
		6/18/93	2.157E-08	3.400E-05	4.410E-07	1400	0.1143	180.1660	2.3369
			4.740E-09	4.945E-05	1.970E-07	3650	0.0655	683.1641	2.7216
		7/16/93	4.726E-09	2.416E-05	4.350E-07	1450	0.0259	132.5961	2.3874
			4.520E-09	8.570E-05	1.990E-07	3975	0.0680	1289.3886	2.9940
	3 rd	7/28/93	3.616E-08	7.010E-05	1.400E-07	1325	0.1813	351.5603	0.7021
			3.610E-08	1.710E-04	2.220E-07	3700	0.5056	2394.7695	3.1090
		8/16/93	4.510E-08	1.430E-04	2.375E-07	1500	0.2561	811.8825	1.3484
			4.507E-09	1.190E-04	1.890E-07	3700	0.0631	1666.5355	2.6469
		8/25/93	4.507E-09	6.110E-05	2.700E-07	1300	0.0222	300.6426	1.3285
			4.742E-09	6.277E-05	2.180E-07	2800	0.0503	665.2365	2.3104
		9/16/93	1.897E-08	6.500E-05	1.460E-07	2200	0.1580	541.2550	1.2157
			4.590E-09	7.390E-05	2.840E-07	3900	0.0678	1090.8749	4.1923
		11/16/93	6.886E-08	7.408E-05	2.405E-07	1300	0.3388	364.5106	1.1834
			4.680E-09	4.830E-05	3.720E-07	3500	0.0620	639.8543	4.9281
	4 th	12/23/93	4.680E-09	5.000E-05	2.680E-07	1800	0.0319	340.6500	1.8259
			4.800E-09	3.065E-05	4.670E-07	2700	0.0491	313.2277	4.7725
			4.800E-09	3.694E-05	4.695E-07	2500	0.0454	349.5448	4.4426

# LIQUID WASTE DISCHARGES OF 1993

7/18/95

Dilution factor (cc/Qtr) =

2.825E+11

## Total Activity Released / Quarter for 1993

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	1.2716	2542.8993	24.8858
2nd QTR	0.4736	1756.4463	22.5446
3rd QTR	1.7111	9476.6559	21.0307
4th QTR	0.1884	1643.2767	15.9691

Yearly Total =	3.6446	15419.2781	84.4302
Yearly Total (Ci) =	3.645E-06	1.542E-02	8.443E-05
AVG Yearly			
Conc. $\mu$ Ci/cc =	1.468E-08	6.210E-05	3.400E-07
Tech Spec			
$\mu$ Ci/cc =	3.000E-06	1.000E-01	5.000E-05
% Tech Spec =	0.49	0.06	0.68

## Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	1.44000E+04	5.45040E+07
2nd QTR	1.50000E+04	5.67750E+07
3rd QTR	2.57000E+04	9.72745E+07
4th QTR	1.05000E+04	3.97425E+07

Yearly Total =	6.56000E+04	2.48296E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## Quarterly Average Released Based on the Ga Tech Dilution factor

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	4.50126E-12	9.00141E-09	8.80914E-11
2nd QTR	1.67654E-12	6.21751E-09	7.98039E-11
3rd QTR	6.05687E-12	3.35457E-08	7.44449E-11
4th QTR	6.66750E-13	5.81691E-09	5.65278E-11

## Quarterly Average Released Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	2.33305E-08	4.66553E-05	4.56587E-07
2nd QTR	8.34211E-09	3.09370E-05	3.97087E-07
3rd QTR	1.75901E-08	9.74218E-05	2.16199E-07
4th QTR	4.73943E-09	4.13481E-05	4.01814E-07

## Maximum quarterly Concentration for 1993

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	8.84000E-08	9.44000E-05	5.44000E-07
2nd QTR	2.15700E-08	4.94500E-05	5.18000E-07
3rd QTR	6.88600E-08	1.71000E-04	2.84000E-07
4th QTR	4.80000E-09	5.00000E-05	4.69500E-07



## LIQUID WASTE DISCHARGES OF 1992

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1992	1 st	1/15/92	2.74E-07	3.74E-05	4.89E-07	3400	3.5261	480.6572	6.2929
			3.18E-07	4.07E-05	4.66E-07	1600	1.9258	246.1764	2.8221
	2 nd	3/17/92	1.38E-07	2.79E-05	3.52E-07	3400	1.7811	358.5303	4.5299
			4.94E-09	2.85E-05	5.24E-07	1300	0.0243	140.4311	2.5759
		5/6/92	3.37E-08	6.04E-05	3.25E-07	3450	0.4401	788.7183	4.2439
			1.39E-08	4.94E-05	6.22E-07	1450	0.0763	271.1196	3.4137
		6/12/92	1.19E-07	9.02E-05	5.36E-07	2900	1.3062	990.0803	5.8834
			1.05E-07	9.93E-05	5.77E-07	1900	0.7551	714.1160	4.1495
		6/24/92	4.62E-07	1.21E-04	5.48E-07	2500	4.3669	1143.0700	5.1855
			1.57E-07	1.25E-04	5.41E-07	2000	1.1847	942.4650	4.0954
	3 rd	7/16/92	1.50E-07	1.42E-04	3.27E-07	3850	2.1858	2069.2595	4.7651
			3.39E-08	1.42E-04	5.31E-07	1450	0.1861	779.3315	2.9143
		7/22/92	7.52E-08	5.39E-05	5.24E-07	3600	1.0247	734.4414	7.1400
			2.35E-08	6.15E-05	5.43E-07	1400	0.1246	325.6765	2.8747
		8/6/92	6.03E-08	7.69E-05	5.48E-07	3600	0.8219	1047.8394	7.4670
			9.28E-08	7.33E-05	5.24E-07	1400	0.4917	388.4167	2.7767
		8/28/92	1.18E-07	7.83E-05	5.65E-07	3750	1.6678	1111.3706	8.0195
			6.11E-08	3.79E-04	4.99E-07	1350	0.3122	1936.5953	2.5498
	4 th	9/16/92	5.79E-08	5.37E-04	5.43E-07	3700	0.8109	7520.4165	7.6044
			6.27E-08	5.08E-04	5.10E-07	1300	0.3085	2499.6140	2.5095
		10/5/92	1.10E-07	7.67E-05	4.74E-07	3600	1.4989	1045.1142	6.4587
			4.31E-08	1.01E-04	5.42E-07	1300	0.2121	496.9705	2.6669
		11/9/92	7.76E-08	2.35E-04	3.99E-07	3500	1.0280	3113.1625	5.2858
			4.85E-09	5.38E-05	5.45E-07	1400	0.0257	284.8213	2.8880



# LIQUID WASTE DISCHARGES OF 1992

7/15/95

Dilution factor (cc/Qtr) = 2.514E+11

## Total Activity Released / Quarter for 1992

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	7.2573	1225.7950	16.2208
2nd QTR	8.1294	4849.5691	26.9713
3rd QTR	7.9342	18412.9614	48.6210
4th QTR	2.7646	4940.0685	17.2993

Yearly Total =	26.0855	29428.3939	109.1125
Yearly Total (Ci) =	2.608E-05	2.943E-02	1.091E-01

### AVG Yearly

Conc. $\mu$ Ci/cc =	1.166E-07	1.316E-04	4.878E-07
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### Tech Spec

$\mu$ Ci/cc =	3.000E-06	1.000E-01	5.000E-05
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% Tech Spec =	3.89	0.13	0.90
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## Quarterly Volume Discharged from NNRC for 1992

	Gals	cc
1st QTR	9.7000E+03	3.6715E+07
2nd QTR	1.4200E+04	5.3747E+07
3rd QTR	2.5400E+04	9.6139E+07
4th QTR	9.8000E+03	3.7093E+07

Yearly Total =	5.9100E+04	2.2369E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## Quarterly Average Released

Based on the Ga Tech Dilution factor

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	2.8868E-11	4.8759E-09	6.4522E-11
2nd QTR	3.2336E-11	1.9290E-08	1.0728E-10
3rd QTR	3.1560E-11	7.3242E-08	1.9340E-10
4th QTR	1.0997E-11	1.9650E-08	6.8812E-11

## Quarterly Average Released

Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	1.9767E-07	3.3387E-05	4.4181E-07
2nd QTR	1.5125E-07	9.0230E-05	5.0182E-07
3rd QTR	8.2528E-08	1.9152E-04	5.0574E-07
4th QTR	7.4533E-08	1.3318E-04	4.6638E-07

## Maximum quarterly Concentration for 1992

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	3.1800E-07	4.0650E-05	5.2350E-07
2nd QTR	4.6150E-07	1.2450E-04	6.2200E-07
3rd QTR	1.5000E-07	5.3700E-04	5.6500E-07
4th QTR	1.1000E-07	2.3500E-04	5.4500E-07

## LIQUID WASTE DISCHARGES OF 1991

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1991	1 st	1/24/91	2.91E-08	5.46E-04	9.72E-07	2720	0.2996	5621.1792	10.0069
			8.25E-08	5.15E-04	9.72E-07	1380	0.4309	2687.3879	5.0770
	2 nd	4/5/91	3.30E-08	7.28E-05	5.40E-07	3300	0.4127	909.3084	6.7449
			2.30E-08	5.88E-05	2.35E-06	1500	0.1303	333.6099	13.3421
		4/29/91	2.82E-08	5.37E-05	3.88E-07	2800	0.2993	568.9006	4.1120
			1.39E-07	4.69E-05	7.25E-07	2500	1.3153	443.7913	6.8603
		5/29/91	3.16E-08	2.20E-05	5.67E-07	2000	0.2395	166.7671	4.2922
			6.69E-07	1.54E-04	2.97E-07	2400	6.0763	1394.3940	2.6979
		6/4/91	4.51E-09	1.84E-05	8.11E-07	2700	0.0461	188.2432	8.2380
			1.76E-07	6.03E-05	3.94E-07	2300	1.5304	524.8546	3.4250
		6/21/91	4.62E-08	2.30E-05	1.16E-06	3300	0.5767	287.7811	14.4890
			2.31E-08	5.09E-05	2.24E-07	1700	0.1485	327.3230	1.4413
	3 rd	7/5/91	7.90E-08	8.63E-05	1.03E-06	3360	1.0043	1097.7832	13.0991
			1.12E-07	7.98E-05	8.50E-07	1620	0.6837	489.4323	5.2119
		7/18/91	4.57E-09	3.56E-05	4.19E-07	3200	0.0553	431.1872	5.0749
			1.83E-08	4.87E-05	2.74E-07	1600	0.1106	295.1089	1.6593
		7/25/91	5.81E-08	4.56E-05	4.78E-07	3400	0.7479	586.6977	6.1514
			7.75E-08	5.32E-05	2.70E-07	1400	0.4106	281.8008	1.4307
		8/5/91	2.38E-08	5.40E-05	6.61E-07	3000	0.2697	613.1700	7.5057
			9.50E-09	5.96E-05	4.99E-07	1300	0.0467	293.1142	2.4553
		8/20/91	1.32E-06	1.66E-04	4.29E-07	3600	17.9591	2261.9160	5.8456
			3.27E-08	1.71E-04	3.62E-07	1400	0.1730	906.6589	1.9182
		8/30/91	5.63E-07	1.90E-05	4.54E-07	2400	5.1161	172.1418	4.1241
			4.69E-09	4.35E-05	2.56E-07	1800	0.0320	296.3655	1.7441
		9/12/91	1.01E-07	8.28E-05	1.09E-06	2400	0.9148	752.4277	9.9016
			1.39E-07	8.92E-05	6.10E-07	1200	0.6316	405.0101	2.7706
		9/18/91	1.75E-07	4.35E-05	2.19E-06	3500	2.3236	576.1338	29.0120
			1.90E-08	4.30E-05	4.28E-07	1400	0.1005	227.8040	2.2680
	4 th	11/11/91	6.77E-07	9.88E-05	3.53E-07	2750	7.0426	1028.3845	3.6743
			5.05E-09	9.94E-05	4.57E-07	2200	0.0421	827.7038	3.8054
		12/18/91	2.37E-08	7.11E-04	2.78E-07	1600	0.1435	4302.7880	1.6836
			2.00E-08	8.73E-04	2.91E-07	1900	0.1438	6278.1795	2.0927
			3.51E-08	7.91E-04	2.99E-07	1300	0.1727	3892.1155	1.4712

# LIQUID WASTE DISCHARGES OF 1991

7/18/95

Dilution factor (cc/Qtr) = 2.371E+11

## Total Activity Released / Quarter for 1991

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	0.7305	8308.5671	15.0840
2nd QTR	10.7750	5144.9732	65.6934
3rd QTR	30.5795	9686.7522	100.1727
4th QTR	7.5447	16329.1713	12.7273

Yearly Total =	49.6297	39469.4637	193.6773
Yearly Total (Ci) =	4.963E-05	3.947E-02	1.937E-04

AVG Yearly

Conc. $\mu$ Ci/cc =	1.750E-07	1.392E-04	6.829E-07
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Tech Spec

$\mu$ Ci/cc =	3.000E-06	1.000E-01	5.000E-05
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% Tech Spec =	5.83	0.14	1.37
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## Quarterly Volume Discharged from NNRC for 1991

	Gals	cc
1st QTR	4.1000E+03	1.5519E+07
2nd QTR	2.4500E+04	9.2733E+07
3rd QTR	3.6580E+04	1.3846E+08
4th QTR	9.7500E+03	3.6904E+07

Yearly Total =	7.4930E+04	2.8361E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## Quarterly Average Released Based on the Ga Tech Dilution factor

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	3.0810E-12	3.5042E-08	6.3619E-11
2nd QTR	4.5445E-11	2.1700E-08	2.7707E-10
3rd QTR	1.2897E-10	4.0855E-08	4.2249E-10
4th QTR	3.1821E-11	6.8870E-08	5.3679E-11

## Quarterly Average Released Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	4.7074E-08	5.3540E-04	9.7200E-07
2nd QTR	1.1619E-07	5.5482E-05	7.0842E-07
3rd QTR	2.2086E-07	6.9963E-05	7.2350E-07
4th QTR	2.0444E-07	4.4248E-04	3.4488E-07

## Maximum quarterly Concentration for 1991

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	8.2500E-08	5.4600E-04	9.7200E-07
2nd QTR	6.6890E-07	1.5350E-04	2.3500E-06
3rd QTR	1.3180E-06	1.7110E-04	2.1900E-06
4th QTR	6.7660E-07	8.7300E-04	4.5700E-07

## LIQUID WASTE DISCHARGES OF 1990

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1990	1 st	1/29/90	9.87E-09	1.51E-05	2.21E-07	3400	0.1270	194.3219	2.8440
			1.01E-08	1.47E-05	2.44E-07	1640	0.0627	91.2488	1.5146
		1/29/90	2.46E-08	6.32E-06	5.77E-07	4000	0.3724	95.6848	8.7358
		1/30/90	4.95E-09	2.73E-06	2.00E-07	4000	0.0749	41.3322	3.0280
		1/30/90	9.90E-09	4.29E-06	2.45E-07	4500	0.1686	73.0694	4.1730
		1/30/90	4.95E-09	1.56E-06	1.43E-07	3660	0.0686	21.6108	1.9810
			1.49E-08	2.45E-06	1.75E-07	5160	0.2910	47.8500	3.4179
		2/2/90	1.52E-08	4.94E-06	5.79E-07	3153	0.1814	58.9545	6.9098
			5.05E-09	4.33E-06	4.32E-07	1980	0.0378	32.4503	3.2375
		2/22/90	4.97E-09	5.43E-06	3.78E-07	2680	0.0504	55.0808	3.8344
			1.01E-08	2.21E-06	2.83E-07	2360	0.0902	19.7410	2.5279
		2/1/90	3.05E-08	2.45E-06	2.62E-08	3500	0.4040	32.4564	0.3471
			9.90E-09	3.33E-06	5.81E-08	3840	0.1439	48.3996	0.8444
		1/30/90	4.95E-09	2.04E-06	3.01E-07	2933	0.0550	22.6469	3.3415
			1.49E-08	2.70E-06	4.23E-07	2200	0.1241	22.4829	3.5223
		3/19/90	3.29E-08	4.87E-06	6.44E-07	2713	0.3378	50.0086	6.6130
			3.80E-08	6.94E-06	3.94E-07	1620	0.2330	42.5540	2.4159
		3/21/90	2.29E-08	6.65E-06	3.73E-07	3300	0.2860	83.0618	4.6590
			1.47E-08	3.01E-06	3.94E-07	1600	0.0890	18.2286	2.3861
		3/26/90	3.35E-08	3.50E-06	6.16E-07	3273	0.4150	43.3591	7.6312
			1.47E-08	1.18E-06	4.20E-07	1700	0.0946	7.5927	2.7025
	2 nd	5/7/90	3.85E-08	6.92E-05	7.98E-07	2450	0.3570	641.7089	7.4001
			1.45E-08	7.22E-05	3.55E-07	2420	0.1328	661.3303	3.2517
		5/29/90	9.81E-09	3.63E-05	4.24E-07	400	0.0149	54.9582	0.6419
		6/7/90	2.91E-08	2.51E-05	4.40E-06	2933	0.3231	278.6453	48.8462
	9.69E-09		3.15E-05	1.56E-06	2200	0.0807	262.3005	12.9901	
	3 rd	7/5/90	4.40E-08	3.87E-05	1.01E-06	3483	0.5801	510.1881	13.3150
			3.38E-08	5.57E-05	1.11E-06	1050	0.1343	221.3657	4.4114
		7/17/90	1.91E-08	3.85E-05	8.22E-07	2933	0.2120	427.4041	9.1254
			4.92E-09	4.17E-05	1.04E-06	2200	0.0410	347.2359	8.6601
		7/26/90	4.85E-09	1.97E-05	6.87E-07	2480	0.0455	184.9200	6.4487
			9.70E-09	5.31E-05	1.26E-06	2240	0.0822	450.2030	10.6828
		8/6/90	4.86E-09	7.04E-05	4.69E-07	2833	0.0521	754.8925	5.0290
			1.95E-08	5.28E-05	9.91E-07	2300	0.1698	459.6504	8.6272
		8/14/90	4.81E-09	6.05E-05	5.75E-07	3153	0.0574	722.0134	6.8621
			6.73E-08	6.36E-05	1.09E-06	1980	0.5044	476.6375	8.1688
		8/22/90	4.86E-09	2.56E-05	9.80E-07	3440	0.0633	333.3222	12.7600



# LIQUID WASTE DISCHARGES OF 1990

7/18/95

## Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	6.3212E+04	2.3926E+08
2nd QTR	1.0403E+04	3.9375E+07
3rd QTR	3.9678E+04	1.5018E+08
4th QTR	1.1650E+04	4.4095E+07

Yearly Total =	1.2494E+05	4.7291E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

1st QTR  
2nd QTR  
3rd QTR  
4th QTR

1st QTR  
2nd QTR  
3rd QTR  
4th QTR

## Quarterly Average Released Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc
1.5496E-08	4.6065E-06	3.2044E-07
2.3071E-08	4.8227E-05	1.8573E-06
1.9196E-08	1.5372E-04	9.5706E-07
7.3960E-07	1.4149E-04	1.6410E-06

## Maximum quarterly Concentration

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc
3.8000E-08	1.5100E-05	6.4400E-07
3.8500E-08	7.2200E-05	4.4000E-06
6.7300E-08	5.4100E-04	1.7900E-06
4.7900E-06	2.5900E-04	2.7200E-06



## LIQUID WASTE DISCHARGES OF 1989

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1989	1 st	1/12/89	8.14E-08	4.02E-05	6.37E-07	3613	1.1132	549.7432	8.7111
			5.70E-08	2.59E-05	9.32E-07	1540	0.3322	150.9685	5.4325
		2/7/89	1.17E-08	1.61E-05	2.25E-07	3293	0.1458	200.6705	2.8044
			5.84E-09	9.32E-06	2.84E-07	1840	0.0407	64.9082	1.9779
		2/28/89	5.68E-09	4.50E-07	2.52E-07	3593	0.0772	6.1192	3.4271
	1.15E-08		7.97E-06	2.09E-07	1540	0.0670	46.4563	1.2182	
	3/21/89	4.78E-08	9.12E-05	1.67E-07	2460	0.4451	849.1723	1.5550	
		3.58E-08	7.12E-05	3.19E-07	1540	0.2087	415.0177	1.8594	
	2 nd	4/6/89	5.70E-09	1.27E-05	2.10E-07	3120	0.0673	149.9768	2.4799
			1.77E-08	2.05E-05	4.20E-07	1620	0.1085	125.6999	2.5753
		5/8/89	5.77E-09	1.33E-05	1.66E-07	2633	0.0575	132.5465	1.6543
			2.88E-08	1.89E-05	2.48E-07	1340	0.1461	95.8589	1.2578
		6/6/89	5.02E-08	6.54E-05	1.44E-07	2900	0.5510	717.8631	1.5806
			4.82E-08	4.92E-05	3.75E-07	1200	0.2189	223.4664	1.7033
		6/13/89	9.17E-08	4.96E-05	1.75E-07	3500	1.2148	657.0760	2.3183
			2.68E-08	4.69E-05	2.78E-07	1200	0.1217	213.0198	1.2627
		6/26/89	1.60E-08	7.58E-05	2.85E-07	2440	0.1478	700.0433	2.6321
			1.92E-08	9.73E-05	1.80E-07	2320	0.1686	854.4108	1.5806
	3 rd	7/12/89	5.74E-08	4.88E-05	1.89E-07	3183	0.6915	587.9256	2.2770
			2.49E-08	5.24E-05	2.32E-07	1950	0.1838	386.7513	1.7123
		7/21/89	9.20E-09	3.81E-05	1.61E-07	3200	0.1114	461.4672	1.9500
			1.38E-08	3.79E-05	2.38E-07	1920	0.1003	275.4269	1.7296
		8/3/89	2.46E-08	3.50E-05	2.20E-07	2580	0.2402	341.7855	2.1484
			2.70E-08	3.84E-05	3.96E-07	1780	0.1819	258.7123	2.6680
		8/24/89	1.88E-08	4.28E-05	3.49E-07	3333	0.2372	539.9393	4.4028
			3.76E-08	4.74E-05	4.33E-07	1820	0.2590	326.5244	2.9828
		9/6/89	3.28E-08	7.36E-05	1.10E-07	3080	0.3824	858.0141	1.2824
			2.84E-08	7.42E-05	1.64E-07	1300	0.1397	365.1011	0.8070
	4 th	9/25/89	3.17E-08	3.59E-05	1.56E-07	3360	0.4031	456.5618	1.9839
			4.21E-08	4.46E-05	8.64E-07	1440	0.2295	243.0878	4.7091
		10/5/89	2.88E-08	1.48E-05	6.50E-08	3473	0.3786	194.5505	0.8544

# LIQUID WASTE DISCHARGES OF 1989

7/18/95

	1.41E-08	9.05E-07	5.91E-08	1660	0.0886	5.6862	0.3713
10/26/89	4.78E-08	2.66E-05	1.86E-07	2840	0.5138	285.9340	1.9994
	6.70E-08	2.89E-05	1.96E-07	1640	0.4159	179.3939	1.2167
11/10/89	6.35E-08	2.82E-05	3.80E-07	2460	0.5913	262.5730	3.5382
	2.89E-08	2.66E-05	2.73E-07	4160	0.4550	418.8330	4.2985
11/13/89	6.05E-08	1.39E-05	1.99E-07	3230	0.7396	169.9351	2.4329
	2.33E-08	1.19E-05	1.79E-07	1900	0.1676	85.5789	1.2873
12/8/89	2.95E-08	6.60E-05	6.99E-07	2890	0.3227	721.9509	7.6461
	2.45E-08	6.79E-05	2.17E-07	1730	0.1604	444.6126	1.4209

Dilution factor (cc/Qtr) = 1.933E+11

## Total Activity Released / Quarter

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	2.4299	2283.0565	26.9856
2nd QTR	2.8022	3869.9615	19.0450
3rd QTR	3.1601	5101.2973	28.6533
4th QTR	3.8335	2769.0481	25.0658

Yearly Total =	12.2258	14023.3635	99.7497
Yearly Total (Ci) =	1.223E-05	1.402E-02	9.975E-05
AVG Yearly			
Conc. $\mu$ Ci/cc =	3.343E-08	3.835E-05	2.728E-07
Tech Spec			
$\mu$ Ci/cc =	3.000E-06	1.000E-01	5.000E-05
% Tech Spec =	1.11	0.04	0.55

## Quarterly Average Released Based on the Ga Tech Dilution factor

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	1.2571E-11	1.1811E-08	1.3960E-10
2nd QTR	1.4497E-11	2.0020E-08	9.8525E-11
3rd QTR	1.6348E-11	2.6391E-08	1.4823E-10
4th QTR	1.9832E-11	1.4325E-08	1.2967E-10

# LIQUID WASTE DISCHARGES OF 1989

7/18/95

## Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	1.9419E+04	7.3501E+07
2nd QTR	2.2273E+04	8.4303E+07
3rd QTR	2.8946E+04	1.0956E+08
4th QTR	2.5983E+04	9.8346E+07

Yearly Total =	9.6621E+04	3.6571E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## Quarterly Average Released Based on the NNRC quarterly volume discharged

	Gross B/G	H-3	Co-60
	Micro Ci/cc	Micro Ci/cc	Micro Ci/cc
1st QTR	3.3060E-08	3.1062E-05	3.6715E-07
2nd QTR	3.3240E-08	4.5905E-05	2.2591E-07
3rd QTR	2.8843E-08	4.6561E-05	2.6153E-07
4th QTR	3.8980E-08	2.8156E-05	2.5487E-07

## Maximum quarterly Concentration for 1989

	Gross B/G	H-3	Co-60
	Micro Ci/cc	Micro Ci/cc	Micro Ci/cc
1st QTR	8.14E-08	9.12E-05	9.32E-07
2nd QTR	9.17E-08	9.73E-05	4.20E-07
3rd QTR	5.74E-08	7.42E-05	8.64E-07
4th QTR	6.70E-08	6.79E-05	6.99E-07

## LIQUID WASTE DISCHARGES OF 1988

7/18/95

Year	Quarter	Date of Discharge	Gross B/G Micro Ci/cc	H-3 Conc. Micro Ci/cc	Co-60 Gam. Spec. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Co-60 Micro Ci
1988	1 st	1/4/88	2.65E-07	5.74E-06	5.28E-07	4620	4.6340	100.3737	9.2330
		1/12/88	2.71E-08	5.63E-06	1.05E-07	5153	0.5286	109.8081	2.0479
		1/21/88	4.04E-07	1.99E-05	9.10E-07	4820	7.3705	363.0496	16.6018
		1/25/88	4.44E-07	4.92E-05	2.03E-06	3710	6.2348	690.8836	28.5060
		2/15/88	1.36E-07	1.20E-04	1.20E-06	4160	2.1414	1889.4720	18.8947
	2 nd	3/4/88	3.10E-07	1.74E-04	6.88E-07	4080	4.7873	2687.0472	10.6185
		4/14/88	3.69E-07	1.63E-05	1.68E-06	4729	6.6048	291.7580	30.0708
		4/21/88	1.61E-07	4.09E-05	3.77E-07	4808	2.9299	744.3097	6.8553
		5/4/88	5.00E-08	1.94E-04	2.00E-07	5045	0.9548	3704.4931	3.8191
		5/20/88	6.62E-07	1.39E-04	2.86E-07	4550	11.4008	2393.8233	4.9254
	3 rd	6/20/88	4.37E-08	6.13E-05	7.80E-06	4250	0.7030	986.0871	125.4728
		7/7/88	2.71E-07	2.76E-05	1.98E-06	4900	5.0261	511.8834	36.7221
		7/20/88	1.73E-07	4.84E-05	< LLD	4850	3.1758	888.4909	0.0000
		7/28/88	1.08E-06	5.76E-05	< LLD	4720	19.2944	1029.0355	0.0000
		8/5/88	9.40E-07	1.23E-04	8.19E-07	2450	8.7169	1140.6098	7.5948
			1.20E-07	1.18E-04	7.11E-07	2400	1.0901	1071.9120	6.4587
		8/15/88	6.20E-07	9.39E-05	8.14E-07	2300	5.3974	817.4465	7.0863
			6.62E-08	8.79E-05	9.39E-07	2400	0.6014	798.4836	8.5299
		8/24/88	3.06E-06	5.25E-05	5.84E-07	2300	33.6032	457.0388	5.0840
			5.42E-08	4.72E-05	2.21E-07	2200	0.4513	393.0344	1.8403
		9/7/88	9.68E-07	5.27E-05	1.82E-07	3773	13.8238	752.5984	2.5991
			4.97E-08	4.67E-05	8.78E-07	880	0.1655	155.5484	2.9244
		9/16/88	7.56E-08	3.48E-05	4.26E-07	3000	0.8584	395.1540	4.8372
			4.88E-08	3.88E-05	2.89E-07	1500	0.2771	220.2870	1.6408
		9/27/88	2.87E-07	6.71E-05	4.22E-07	2400	2.6071	609.5364	3.8334
	4 th		4.78E-08	8.69E-05	3.82E-07	2000	0.3618	657.8330	2.8917
		10/12/88	3.83E-08	5.13E-05	7.91E-07	2040	0.2957	396.1078	6.1076
			4.48E-08	1.04E-05	2.71E-07	1960	0.3324	77.1534	2.0104
		11/3/88	5.30E-09	2.87E-05	5.03E-07	1750	0.0351	189.7704	3.3317
			1.57E-08	3.11E-05	4.62E-07	1600	0.0951	188.3416	2.7979
		12/20/88	6.27E-08	1.50E-05	3.82E-07	2780	0.6597	157.8345	4.0195
			2.76E-07	1.09E-05	3.72E-07	1560	1.6297	64.3601	2.1965

# LIQUID WASTE DISCHARGES OF 1988

7/18/95

Dilution factor (cc/Qtr) = 1.987E+11

## Total Activity Released / Quarter for 1988

Gross B/G	H-3	Co-60
Micro Ci	Micro Ci	Micro Ci

1st QTR	25.6965	5840.6342	85.9018
2nd QTR	22.5933	8120.4711	171.1433
3rd QTR	95.4504	9898.8920	92.0428
4th QTR	3.0477	1073.5679	20.4637

Yearly Total =	146.7878	24933.5652	369.5516
Yearly total (Ci) =	1.468E-04	2.493E-02	3.696E-04

AVG Yearly

Conc. $\mu$ Ci/cc =	3.740E-07	6.353E-05	9.416E-07
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Tech Spec

$\mu$ Ci/cc =	3.000E-06	1.000E-01	5.000E-05
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% Tech Spec =	12.47	0.06	1.88
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## Quarterly Volume Discharged from NNRC for 1988

	Gals	cc
1st QTR	2.6543E+04	1.0047E+08
2nd QTR	2.3382E+04	8.8501E+07
3rd QTR	4.2073E+04	1.5925E+08
4th QTR	1.1690E+04	4.4247E+07

Yearly Total =	1.0369E+05	3.9246E+08
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NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## Quarterly Average Released Based on the Ga Tech Dilution factor

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	1.2932E-10	2.9394E-08	4.3232E-10
2nd QTR	1.1371E-10	4.0868E-08	8.6132E-10
3rd QTR	4.8037E-10	4.9818E-08	4.6322E-10
4th QTR	1.5338E-11	5.4030E-09	1.0299E-10

## Quarterly Average Released Based on the NNRC quarterly volume discharged

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	2.5577E-07	5.8136E-05	8.5504E-07
2nd QTR	2.5529E-07	9.1756E-05	1.9338E-06
3rd QTR	5.9939E-07	6.2161E-05	5.7799E-07
4th QTR	6.8879E-08	2.4263E-05	4.6249E-07

## Maximum quarterly Concentration

Gross B/G	H-3	Co-60
Micro Ci/cc	Micro Ci/cc	Micro Ci/cc

1st QTR	4.44E-07	1.74E-04	2.03E-06
2nd QTR	6.62E-07	1.94E-04	7.80E-06
3rd QTR	3.86E-06	1.23E-04	1.98E-06
4th QTR	2.76E-07	5.13E-05	7.91E-07



## LIQUID WASTE DISCHARGES OF YEAR 1987

7/18/95

Quarterly AVG. Released  
Based on the GT Dilution factor

Total Activity Released / Quarter

Year	Quarter	Date of Discharge	Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci	Dilution factor (cc/Gtr) =		2.00E+11 H-3 Micro Ci/cc
									H-3 Micro Ci	Gross B/G Micro Ci/cc	
1987	1 st	1/5/87	4.88E-08	3.55E-05	4530	0.837	608.685				
		1/20/87	2.59E-07	1.41E-04	3760	3.686	2006.656				
		2/3/87	1.67E-07	1.51E-04	4430	2.800	2531.900				
		2/27/87	1.99E-07	1.61E-04	4080	3.073	2486.291				
		3/9/87	1.66E-07	1.90E-04	4830	3.035	3473.495				
	2 nd	3/19/87	7.80E-07	4.80E-05	1050	3.100	190.764				
		3/24/87	1.04E-06	1.97E-05	865	3.405	64.498	19.936	11362.288	9.968E-11	5.681E-08
		4/14/87	6.29E-07	1.80E-04	4450	10.594	3031.785				
		5/13/87	4.97E-07	3.56E-05	4590	8.634	818.484				
		5/27/87	2.22E-07	6.53E-05	4670	3.924	1154.240				
		6/5/87	2.13E-07	3.41E-04	4070	3.281	5253.088				
		6/12/87	1.33E-07	1.15E-04	4620	2.326	2010.971				
		6/19/87	2.13E-07	6.58E-05	4300	3.467	1070.928				
		6/26/87	3.71E-06	5.91E-05	4630	65.016	1035.701	97.243	14175.196	4.862E-10	7.088E-08
	3 rd	7/2/87	1.42E-05	1.43E-04	4270	229.500	2311.159				
		7/13/87	7.99E-07	7.94E-05	4790	14.486	1439.534				
		7/17/87	1.60E-07	8.50E-05	4150	2.513	1335.159				
		7/24/87	7.10E-08	3.95E-05	4340	1.166	648.863				
		7/30/87	4.88E-07	6.15E-05	1050	1.939	244.416				
		7/31/87	1.51E-07	9.05E-05	4040	2.309	1383.872				
		8/10/87	1.24E-07	8.10E-05	5120	2.403	1569.715				
		8/10/87	5.32E-08	1.29E-04	1425	0.287	695.778				
		8/19/87	2.75E-07	2.31E-04	4390	4.569	3838.331				
		8/26/87	1.24E-07	1.29E-04	4160	1.952	2031.182				
	4 th	9/4/87	8.88E-09	7.68E-05	4590	0.154	1334.258				
		9/14/87	9.61E-07	7.02E-05	4920	17.896	1307.278				
		9/28/87	2.75E-07	6.25E-05	3920	4.080	927.325	283.256	19066.869	1.416E-09	9.533E-08
		10/7/87	3.39E-07	5.69E-05	4520	5.800	973.457				
		10/28/87	9.86E-08	4.37E-04	4545	1.696	7517.635				
		11/17/87	1.51E-06	2.26E-04	4950	28.291	4234.280				
		11/24/87	2.05E-06	4.61E-05	2920	22.657	509.506				
		12/8/87	2.47E-07	7.82E-05	3100	2.898	917.560				
		12/17/87	3.89E-07	3.07E-05	3830	5.639	445.044				
		12/28/87	7.40E-07	7.50E-08	3725	10.433	1.057	77.415	14598.538	3.871E-10	7.299E-08

Total Volume (ml) = 133630  
5.058E+08

Yearly Total = 477.849 59202.892  
 Yearly Total (Ci) = 4.778E-04 5.920E-02

Yearly AVG. Conc = 9.448E-07 1.171E-04 Micro Ci/cc

Tech Spec = 3.000E-06 1.000E-01 Micro Ci/cc

% Tech Spec = 31.49 0.12

# LIQUID WASTE DISCHARGES OF YEAR 1987

7/18/95

## Quarterly Volume Discharged from NNRC

	Gal.	cc
1st QTR	2.35E+04	8.912E+07
2nd QTR	3.13E+04	1.186E+08
3rd QTR	5.12E+04	1.937E+08
4th QTR	2.76E+04	1.044E+08
Total =	1.34E+05	5.0GE+08

## NNRC Quarterly Average Released Based on the NNRC quarterly Volume discharged

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	2.237E-07	1.275E-04
2nd QTR	8.206E-07	1.195E-04
3rd QTR	1.463E-06	9.846E-05
4th QTR	7.413E-07	1.398E-04

## Maximum quarterly Concentration

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	1.04E-06	1.90E-04
2nd QTR	3.71E-06	3.41E-04
3rd QTR	1.42E-05	2.31E-04
4th QTR	2.05E-06	4.37E-04

NOTE: Total Alpha radioactivity released and average  
Concentration released is < MDA

## LIQUID WASTE DISCHARGES OF YEAR 1986

7/18/95

Year	Quarter	Date of Discharge	Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Total Activity Released / Quarter		Quarterly AVG. Released Based on the GT Dilution factor	
								Gross B/G Micro Ci	H-3 Micro Ci	Dilution factor = Gross B/G Micro Ci/cc	7.40E+10 H-3 Micro Ci/cc
1986	1st	1/17/86	3.52E-08	1.37E-04	3880	0.517	2011.955				
		1/31/86	1.04E-07	7.07E-05	4240	1.669	1134.622				
		2/21/86	1.13E-07	6.57E-05	3940	1.685	979.778				
		3/5/86	2.77E-07	1.23E-05	28000	29.356	1303.554				
		3/12/86	1.26E-05	8.72E-05	4280	204.117	1412.623				
	2nd	3/17/86	3.90E-07	1.44E-05	3780	5.580	206.025				
		3/21/86	2.30E-07	3.72E-05	4260	3.709	599.817	246.635	7648.372	3.333E-09	1.034E-07
		4/4/86	1.40E-07	2.91E-05	4100	2.173	451.588				
		4/16/86	1.20E-07	4.62E-05	3900	1.771	681.981				
		4/28/86	4.34E-08	7.36E-05	3960	0.651	1103.161				
		5/9/86	8.65E-08	6.20E-05	4070	1.333	955.107				
		5/30/86	6.29E-08	1.82E-04	4180	0.995	2879.477				
		6/10/86	5.43E-08	1.45E-04	4260	0.876	2337.995				
		6/23/86	5.43E-08	1.01E-04	4930	1.013	1884.665	8.811	10293.974	1.191E-10	1.391E-07
	3rd	7/7/86	4.34E-08	5.12E-04	4250	0.698	8236.160				
		7/21/86	1.41E-07	2.86E-04	2500	1.334	2706.275				
		8/1/86	1.52E-07	5.18E-04	4560	2.623	8940.473				
		8/14/86	3.80E-07	2.54E-04	4530	6.515	4355.097				
		8/22/86	4.12E-08	2.50E-04	4380	0.683	4144.575				
		9/3/86	7.32E-08	1.56E-04	4140	1.147	2444.504				
		9/11/86	6.74E-08	1.24E-04	4260	1.087	1999.388				
		9/19/86	6.10E-08	2.49E-04	3110	0.718	2931.066				
		9/30/86	1.30E-07	1.18E-04	3870	1.904	1728.458	16.710	37485.997	2.258E-10	5.066E-07
	4th	10/7/86	6.22E-07	1.11E-04	4820	11.348	2025.051				
		10/14/86	6.96E-07	2.93E-04	4630	12.197	5134.693				
		11/7/86	1.95E-07	2.39E-04	4380	3.233	3962.214				
		11/14/86	7.32E-08	1.84E-05	4280	1.186	298.076				
		11/21/86	4.88E-08	1.72E-04	3470	0.641	2259.039				
		12/11/86	1.10E-07	5.76E-05	4260	1.774	928.748	30.378	14607.821	4.105E-10	1.974E-07

Total Volume (ml) =  $\frac{143220}{5.421E+08}$

Yearly Total =	302.533	70036.164
Yearly Total (Ci) =	3.025E-04	7.004E-02

Yearly AVG. Conc. =	5.581E-07	1.292E-04	Micro Ci/cc
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Tech Spec =	3.000E-06	1.000E-01	Micro Ci/cc
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% Tech Spec =	18.60	0.13
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# LIQUID WASTE DISCHARGES OF YEAR 1986

7/18/95

## Quarterly Average Released Based on the NNRC quarterly volume discharged

## Maximum quarterly Concentration

### Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	5.24E+04	1.983E+08
2nd QTR	2.94E+04	1.113E+08
3rd QTR	3.56E+04	1.347E+08
4th QTR	2.58E+04	9.780E+07

Gross B/G  
Micro Ci/cc

H-3  
Micro Ci/cc

1st QTR	1.244E-06	3.858E-05
2nd QTR	7.916E-08	9.251E-05
3rd QTR	1.240E-07	2.782E-04
4th QTR	3.106E-07	1.494E-04

Gross B/G  
Micro Ci/cc

H-3  
Micro Ci/cc

1st QTR	1.26E-05	1.37E-04
2nd QTR	1.40E-07	1.82E-04
3rd QTR	3.80E-07	5.18E-04
4th QTR	6.96E-07	2.93E-04

NOTE: Total Alpha radioactivity released and average  
Concentration released is < MDA

# LIQUID WASTE DISCHARGES OF YEAR 1985

7/18/95

Quarterly AVG. Released  
Based on the GT Dilution factor  
Dilution factor = 7.40E+10

Year	Quarter	Date of Discharge	Total Activity Released / Quarter		Gross B/G Micro Ci/cc	H-3 Micro Ci/cc	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
			Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc						
1985	1st	1/29/85	1.65E-07	4.89E-06	3920	2.448	72.554			
		2/6/85	7.36E-08	5.87E-06	4000	1.114	88.872			
		2/26/85	1.10E-07	1.52E-04	4000	1.665	2301.280			
	2nd	3/15/85	2.00E-07	3.72E-05	4020	3.043	566.024	8.271	3028.730	1.118E-10
		4/24/85	4.91E-08	3.33E-05	2380	0.442	299.976			
		5/3/85	7.86E-08	3.72E-05	3780	1.125	532.232			
		5/21/85	4.82E-07	5.48E-05	4460	8.137	925.084			
		5/29/85	9.82E-09	2.54E-05	4260	0.158	409.552			
		6/7/85	4.91E-08	1.80E-04	4110	0.764	2800.143			
		6/10/85	8.84E-08	6.85E-06	2600	0.870	67.411			
	3rd	6/11/85	7.86E-08	1.56E-05	3000	0.893	177.138			
		6/24/85	2.26E-07	6.05E-05	3980	3.405	911.390	15.793	6122.926	2.134E-10
		7/2/85	2.36E-07	1.96E-06	500	0.447	3.709			
		7/8/85	1.77E-07	8.71E-05	4900	3.283	1615.400			
		7/9/85	9.82E-09	9.84E-07	4900	0.182	18.250			
		7/17/85	1.57E-07	8.06E-05	4280	2.543	1305.704			
		7/29/85	1.96E-08	1.45E-04	4840	0.359	2656.313			
		8/7/85	1.67E-07	6.29E-05	4430	2.800	1054.679			
		8/15/85	1.08E-07	5.11E-05	4540	1.856	878.097			
		8/23/85	3.93E-08	3.34E-05	4700	0.699	594.169			
		9/3/85	1.47E-07	5.31E-05	4993	2.778	1003.511			
		9/13/85	6.87E-08	6.98E-05	4400	1.144	1162.449	16.091	10292.281	2.174E-10
	4th	9/27/85	1.96E-08	1.45E-04	3650	0.271	2003.211			
		10/7/85	1.18E-07	7.35E-05	2320	1.036	645.418			
		10/16/85	1.23E-07	5.38E-05	3900	1.816	794.169			
		10/28/85	3.04E-08	4.04E-04	4120	0.474	6300.057			
		11/15/85	1.23E-07	3.52E-05	1820	0.847	242.482			
		11/21/85	8.82E-09	1.49E-04	3100	0.103	1748.292			
		12/2/85	1.41E-07	5.37E-05	4940	2.636	1004.077			
		12/19/85	1.49E-07	2.38E-05	4190	2.363	377.448	9.547	13115.154	1.290E-10

Total Volume (ml) = 115033  
4.354E+08

Yearly Total = 49.702 32559.091  
Yearly Total (Ci) = 4.97019E-05 3.256E-02

Yearly AVG Conc. = 1.142E-07 7.478E-05 Micro Ci/cc

Tech Spec = 3.000E-06 1.000E-01 Micro Ci/cc

% Tech Spec = 3.81 0.07



# LIQUID WASTE DISCHARGES OF YEAR 1985

7/18/95

## Quarterly Average Released Based on the NNRC quarterly volume discharged

## Maximum quarterly Concentration

### Quarterly Volume Discharged from NNRC

Gals cc

Gross B/G  
Micro Ci/cc

H-3  
Micro Ci/cc

Gross B/G  
Micro Ci/cc

H-3  
Micro Ci/cc

1st QTR	1.59E+04	6.033E+07
2nd QTR	2.86E+04	1.081E+08
3rd QTR	4.25E+04	1.608E+08
4th QTR	2.80E+04	1.061E+08
Total	1.150E+05	4.354E+08

1st QTR	1.371E-07	5.020E-05
2nd QTR	1.460E-07	5.662E-05
3rd QTR	1.001E-07	6.401E-05
4th QTR	8.995E-08	1.236E-04

1st QTR	2.00E-07	1.52E-04
2nd QTR	4.82E-07	1.80E-04
3rd QTR	2.36E-07	1.45E-04
4th QTR	1.49E-07	4.04E-04

NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## 7/18/95

Quarterly AVG. Released  
Based on the GT Dilution factor  
Dilution factor = 7.40E+10

Year	Quarter	Date of Discharge	Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1984	1 st	1/27/84	8.89E-09	2.51E-04	4420	0.149	4199.155				
		3/2/84	2.00E-08	3.15E-04	4280	0.324	5102.937				
		3/28/84	7.61E-08	4.56E-05	1400	0.403	241.634				
		3/29/84	2.22E-08	3.61E-05	3360	0.282	459.105				
			1.69E-07	1.15E-03	1200	0.768	5223.300				
			2.67E-08	9.09E-04	1200	0.121	4128.678	2.047	19354.809	2.766E-11	2.616E-07
	2 nd	4/9/84	3.10E-08	6.09E-05	4820	0.566	1111.041				
		4/23/84	2.00E-07	9.03E-05	1030	0.780	352.039				
			8.73E-08	3.04E-05	760	0.251	87.449				
		5/3/84	5.92E-07	9.13E-05	4780	10.711	1651.827				
		5/25/84	9.70E-09	9.60E-05	4760	0.175	1729.594				
		6/15/84	7.76E-08	4.85E-05	4200	1.234	771.005				
		6/18/84	6.98E-07	5.33E-05	1200	3.170	242.089				
			1.45E-06	2.76E-05	1140	6.257	119.091				
		6/26/84	3.98E-07	5.42E-05	4840	7.291	992.911	30.433	7057.045	4.113E-10	9.537E-08
	3 rd	7/2/84	9.69E-08	8.64E-05	1350	0.495	451.702				
			1.45E-07	5.33E-05	1350	0.741	272.350				
		7/16/84	2.34E-08	1.10E-04	4950	0.438	2060.933				
		7/18/84	3.88E-08	1.11E-04	1287	0.189	540.714				
			1.16E-07	1.25E-04	1287	0.567	608.912				
		7/27/84	1.70E-07	8.17E-06	4700	3.024	145.340				
		8/2/84	2.04E-07	4.12E-05	4060	3.135	633.125				
		8/6/84	1.09E-06	4.30E-05	1200	4.951	195.306				
			1.19E-06	9.49E-05	1280	5.765	459.772				
		8/7/84	4.07E-07	5.65E-05	1260	1.941	269.454				
		8/13/84	1.75E-07	6.42E-05	4840	3.206	1176.105				
		8/27/84	1.16E-07	8.33E-05	4000	1.756	1261.162				
			3.82E-08	4.70E-05	1000	0.145	177.895				
			1.07E-07	4.12E-05	1090	0.441	169.977				
		8/31/84	4.85E-08	3.33E-05	2640	0.485	332.747				
		9/14/84	1.35E-07	4.89E-05	3120	1.594	577.470	28.874	9332.962	3.902E-10	1.261E-07
	4 th	10/2/84	4.36E-07	2.08E-04	2500	4.126	1968.200				
		10/3/84	1.75E-07	5.56E-05	3810	2.524	801.799				
		10/4/84	1.36E-07	4.98E-05	400	0.206	75.397				
			3.88E-08	4.22E-05	350	0.051	55.904				
		10/5/84	6.79E-08	5.17E-05	3440	0.884	673.155				
		10/17/84	1.94E-07	8.43E-05	4880	3.583	1557.088				
		10/24/84	1.55E-07	3.16E-05	4260	2.499	509.522				
		11/9/84	5.81E-08	6.80E-05	2320	0.510	597.122				
		11/27/84	1.84E-07	3.64E-05	4060	2.828	559.362				

# LIQUID WASTE DISCHARGES OF YEAR 1984

7/18/95

Total Activity Released / Quarter

Quarterly AVG. Released  
Based on the GT Dilution factor  
Dilution factor = 7.40E+10

Year	Quarter	Date of Discharge	Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci	H-3 Micro Ci	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
		12/19/84	1.32E-07	2.68E-05	3720	1.859	377.349				
		12/21/84	9.20E-08	2.78E-05	2000	0.696	210.446	19.766	7385.345	2.671E-10	9.980E-08

114544  
Total Volume (ml) = 4.335E+08

Yearly Total =	81.120	43130.162
Yearly Total (CI) =	8.112E-05	4.313E-02

Yearly AVG. Conc. = 1.871E-07 9.948E-05 Micro Ci/cc

Tech Spec = 3.000E-06 1.000E-01 Micro Ci/cc

% Tech Spec = 6.24 0.10

## Quarterly Average Released Based on the NNRC quarterly volume discharged

## Maximum quarterly Concentration

### Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	1.59E+04	6.003E+07
2nd QTR	2.75E+04	1.042E+08
3rd QTR	3.94E+04	1.492E+08
4th QTR	3.17E+04	1.201E+08
Total	1.145E+05	4.335E+08

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	3.410E-08	3.224E-04
2nd QTR	2.921E-07	6.773E-05
3rd QTR	1.935E-07	6.256E-05
4th QTR	1.645E-07	6.147E-05

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	1.69E-07	1.15E-03
2nd QTR	1.45E-06	9.60E-05
3rd QTR	1.19E-06	1.25E-04
4th QTR	4.36E-07	2.08E-04

NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

## LIQUID WASTE DISCHARGES OF YEAR 1983

7/18/95

Year	Quarter	Date of Discharge	Gross Beta-Gamma Micro Ci/cc	H-3 Conc. Micro Ci/cc	Volume Discharged Gallons	Gross B/G Micro Ci	H-3 Micro Ci	Total Activity Released / Qtr		Quarterly AVG. Released Based on the GT Dilution factor	
								Gross B/G Micro Ci	H-3 Micro Ci	Dilution factor = Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1983	1 st	1/10/83	2.51E-07	1.92E-05	4200	3.990	305.222				
		1/28/83	4.75E-07	9.83E-07	1200	2.157	4.465				
			8.18E-07	9.80E-07	1200	3.715	4.451				
		2/7/83	1.79E-06	9.80E-07	1400	9.485	5.193				
		2/16/83	2.10E-06	1.00E-05	1500	11.923	59.775				
			2.18E-06	8.40E-06	1500	12.377	47.691				
		2/14/83	5.69E-06	1.21E-05	2700	58.149	123.656				
		3/7/83	1.58E-07	3.75E-05	5000	2.990	709.688				
			1.32E-07	4.40E-05	1375	0.687	228.993				
			1.58E-07	1.40E-05	1325	0.792	70.212	106.266	1556.345	1.436E-09	2.103E-08
	2 nd	4/5/83	7.00E-08	4.50E-06	4000	1.060	68.130				
		4/8/83	1.20E-06	4.00E-05	1200	5.450	181.680				
			4.80E-07	3.26E-05	1200	2.180	148.069				
		5/16/83	1.98E-08	5.32E-05	5200	0.390	1047.082				
		5/18/83	6.66E-07	6.25E-05	1450	3.655	343.016				
			7.58E-07	6.34E-05	1450	4.160	347.955				
		5/27/83	6.62E-09	3.17E-05	365	0.009	43.794				
			7.77E-07	4.76E-05	865	2.544	155.844				
			4.24E-08	6.23E-05	900	0.144	212.225				
		6/10/83	8.02E-08	1.46E-04	3300	1.002	1823.613				
		6/20/83	6.90E-08	1.60E-04	0	0.000	0.000				
			1.40E-07	1.40E-04	0	0.000	0.000				
		6/21/83	1.65E-08	1.39E-04	1500	0.094	789.173				
			2.96E-08	1.69E-04	1500	0.168	959.498				
	3 rd	6/24/83	3.83E-08	7.37E-05	4540	0.658	1266.453	21.514	7386.532	2.907E-10	9.982E-08
		7/1/83	1.45E-07	1.26E-04	4750	2.607	2265.323				
		7/13/83	1.03E-07	1.84E-04	4420	1.723	3078.265				
		7/15/83	3.71E-08	8.15E-05	2700	0.379	832.889				
			5.70E-07	1.53E-04	0	0.000	0.000				
		7/26/83	2.24E-08	1.67E-04	4540	0.385	2869.711				
		7/27/83	9.40E-08	7.39E-05	1100	0.391	307.683				
			8.06E-08	7.96E-05	1100	0.336	331.415				
		8/10/83	2.24E-08	2.04E-04	4500	0.382	3474.630				
		8/11/83	9.12E-07	2.03E-04	1000	3.452	768.355				
			2.53E-07	3.40E-04	1000	0.958	1286.900				
		8/24/83	1.39E-07	1.39E-04	4620	2.413	2430.651				
		9/2/83	6.27E-08	9.85E-05	3430	0.814	1278.781				
		9/13/83	7.54E-08	1.14E-04	1500	0.428	647.235				
			1.42E-07	8.05E-05	1500	0.806	457.039				
			8.95E-09	1.34E-04	5000	0.169	2535.950				
		9/23/83	2.19E-07	1.37E-04	4000	3.316	2074.180				
		9/28/83	1.79E-08	3.32E-05	5000	0.339	628.310				
		9/29/83	1.97E-07	2.37E-05	1500	1.118	134.557				
	4 th		7.07E-06	3.69E-05	1500	40.140	209.500	60.156	25611.373	8.129E-10	3.461E-07
		10/21/83	3.58E-08	1.95E-04	4060	0.550	2996.585				

# LIQUID WASTE DISCHARGES OF YEAR 1983

7/18/95

Year	Quarter	Date of Discharge	Gross Beta-Gamma		H-3 Conc.	Volume Discharged	Gross B/G		H-3	Gross B/G		H-3	Total Activity Released / Qtr		Quarterly AVG. Released Based on the GT Dilution factor	
			Micro Ci/cc		Micro Ci/cc	Gallons	Micro Ci		Micro Ci	Micro Ci		Micro Ci	Micro Ci		Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
		11/15/83	4.03E-08		4.64E-05	4060	0.619		713.033							
		11/21/83	4.50E-09		2.74E-05	1500	0.026		155.564							
			1.10E-08		1.14E-05	1500	0.062		64.724							
		11/28/83	4.49E-09		1.04E-05	5000	0.085		196.820							
		11/30/83	8.95E-09		1.89E-05	1400	0.047		100.151							
			1.34E-08		6.63E-06	1400	0.07		35.13							
		12/15/83	8.95E-09		1.61E-05	5000	0.17		304.69							
		12/23/83	5.82E-08		2.56E-05	3600	0.79		348.83	2.423		4915.527			3.275E-11	6.643E-08

Total Volume (ml) = 129550  
4.903E+08

Yearly Total = 190.360 39469.776  
Yearly Total (Ci) = 1.904E-04 3.947E-02

Yearly AVG. Conc. = 3.882E-07 8.049E-05 Micro Ci/cc

Tech Spec = 3.000E-06 1.000E-01 Micro Ci/cc

% Tech Spec = 12.94 0.08

## Quarterly Average Released Based on the NNRC quarterly volume discharged

## Maximum quarterly Concentration

### Quarterly Volume Discharged from NNRC

	Gals	cc
1st QTR	2.14E+04	8.100E+07
2nd QTR	2.75E+04	1.040E+08
3rd QTR	5.32E+04	2.012E+08
4th QTR	2.75E+04	1.042E+08
Total	1.296E+05	4.903E+08

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	1.312E-06	1.921E-05
2nd QTR	2.069E-07	7.104E-05
3rd QTR	2.990E-07	1.273E-04
4th QTR	2.326E-08	4.719E-05

	Gross B/G Micro Ci/cc	H-3 Micro Ci/cc
1st QTR	5.69E-06	4.40E-05
2nd QTR	1.20E-06	1.69E-04
3rd QTR	7.07E-06	3.40E-04
4th QTR	5.82E-08	1.95E-04

NOTE: Total Alpha radioactivity released and average

Concentration released is < MDA

NOTE: The following dates 6/20/83 and 7/15/83 show a zero value for the volume discharged because no data was available on how much the volume was.