



NIST

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

January 23, 1991

George H. Bidinger, Section Leader
Uranium Fuel Section
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Ref: Docket No. 70-398
License No. SNM-362

Dear Mr. Bidinger:

Enclosed are the responses from National Institute of Standards and Technology to the environmentally related questions posed in your letter of Dec. 17, 1990. We are preparing responses to the additional questions relative to our Materials License Document as posed in your letter of Dec. 28, 1990, and discussed with S. Soong of your office, as well as the information on NIST fire protection systems requested by A. Datta of your office. As soon as we have the information and it has been discussed in depth with your staff, we will submit those responses.

We hope this satisfies your immediate needs. Should you have questions, please contact Mr. T. Hobbs, Chief of the NIST Health Physics office, on 975-5800.

Sincerely,

L. E. Pevey, Chief
Occupational Health and Safety Division
(Materials License Manager)

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LIST OF FIGURES

Figure 1: Topographical Map of NIST Site

Figure 2: Environmental Water Sampling Locations

- Site No. 1 - Clopper Road (stream, Long Draft Branch, NW of NIST)
- Site No. 2 - Main Gate (stream, Long Draft Branch, NE of NIST)
- Site No. 3 - Izaak Walton Preserve (pond, SE of NIST)
- Site No. 4 - MD Rt. 28 (stream, Muddy Branch, SW of NIST)
- Site No. 5 - Kent Farm (well, SW of NIST)
- Site No. 6 - NIST SW boundary (stream, west leg feeder to Lake Elysium)
- Site No. 7 - NIST SW boundary (stream, east leg feeder to Lake Elysium)
- Site No. 8 - Brick House on Izaak Walton Preserve (well, S of NIST)

Note: Two of the sampling sites, No. 2 and No. 3, were changed slightly to accomodate road construction projects in 1990.

LEGEND

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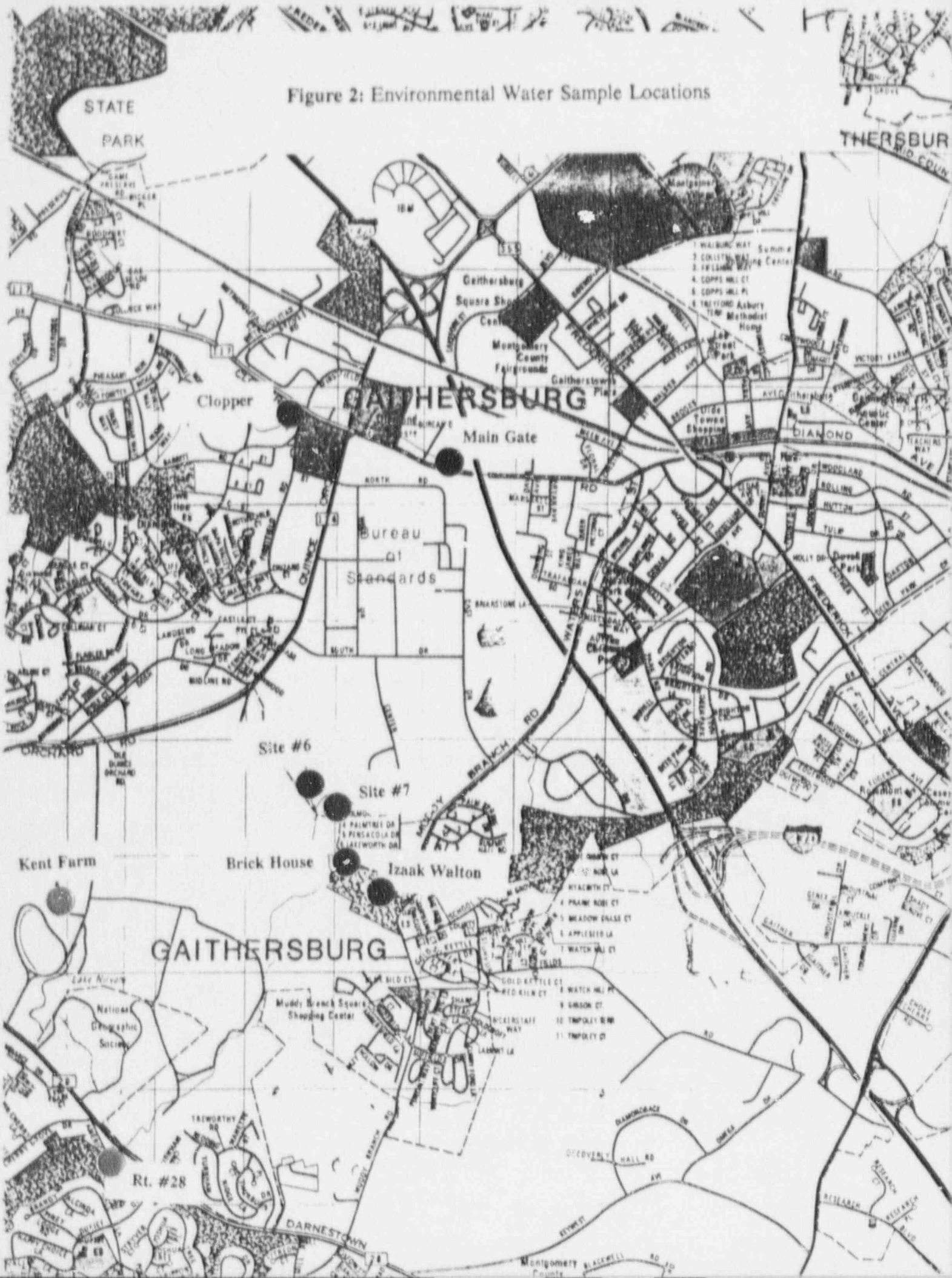


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Figure 2: Environmental Water Sample Locations



ADDENDA

- 1 - Wind information
- 2 - WSSC discharge permit

SECTION III

(SUPPLEMENT)

TOTAL TOXIC ORGANICS
(TTO)

The term "TTO" shall mean total toxic organics which is the summation of all quantifiable values greater than 10 micrograms per liter for the following toxic organics:

Acenaphthene	N-nitrosodiphenylamine
Acrolein	N-nitrosodi-n-propylamine
Acrylonitrile	Pentachlorophenol
Benzene	Phenol
Benzidine	Bis (2-ethylhexyl) phthalate
Carbon tetrachloride (tetrachloromethane)	Butyl benzyl phthalate
Chlorobenzene	Di-n-butyl phthalate
1,2,4-Trichlorobenzene	Di-n-octyl phthalate
Hexachlorobenzene	Diethyl phthalate
1,2-Dichloroethane	Dimethyl phthalate
1,1,1-Trichloroethane	1,2-Benzanthracene
Hexachloroethane	(benzo(a)anthracene)
1,1-Dichloroethane	Benzo(a)pyrene (3,4-benzopyrene)
1,1,2-Trichloroethane	3,4-Benzofluoranthene
1,1,2,2-Tetrachloroethane	(benzo(b)fluoranthene)
Chloroethane	11,12-Benzofluoranthene
Bis (2-chloroethyl) ether	(benzo(k)fluoranthene)
2-Chloroethyl vinyl ether (mixed)	Chrysene
2-Chloronaphthalene	Acenaphthylene
2,4,6-Trichlorophenol	Anthracene
Parachlorometa cresol	1,12-Benzoperylene (benzo(ghi)perylene)
Chloroform (trichloromethane)	Fluorene
2-Chlorophenol	Phenanthrene
1,2-Dichlorobenzene	1,2,5,6-Dibenzanthracene
1,3-Dichlorobenzene	(dibenzo(a,h)anthracene)
1,4-Dichlorobenzene	Indeno(1,2,3-cd) pyrene (2,3-o-phenylene
2,2-Dichlorobenzidine	pyrene)
1,1-Dichloroethylene	Pyrene
1,2-Trans-dichloroethylene	Tetrachloroethylene
2,4-Dichlorophenol	Toluene
1,2-Dichloropropane	Trichloroethylene
1,3-Dichloropropylene (1,3-dichloropropene)	Vinyl chloride (chloroethylene)
2,4-Dimethylphenol	Aldrin
2,4-Dinitrotoluene	Dieldrin
2,6-Dinitrotoluene	Chlordane (technical mixture and metabolites)
1,2-Diphenylhydrazine	4,4-DDT
Ethylbenzene	4,4-DDE (p,p-DDX)
Fluoranthene	4,4-DDD (p,p-TDE)
4-Chlorophenyl phenyl ether	Alpha-endosulfan
4-Bromophenyl phenyl ether	Beta-endosulfan
Bis (2-chloroisopropyl) ether	Endosulfan sulfate
Bis (2-chloroethoxy) methane	Endrin
Methylene chloride (dichloromethane)	Endrin aldehyde
Methyl chloride (chloromethane)	Heptachlor
Methyl bromide (bromomethane)	Heptachlor epoxide
Bromoform (tribromomethane)	(BHC-hexachlorocyclohexane)
Dichlorobromomethane	Alpha-BHC
Chlorodibromomethane	Beta-BHC
Hexachlorobutadiene	Gamma-BHC
Hexachlorocyclopentadiene	Delta-BHC
Isophorone	(PCB-polychlorinated biphenyls)
Naphthalene	PCB-1242 (Arochlor 1242)
Nitrobenzene	PCB-1254 (Arochlor 1254)
2-Nitrophenol	PCB-1221 (Arochlor 1221)
4-Nitrophenol	
2,4-Dinitrophenol	PCB-1232 (Arochlor 1232)
4,6-Dinitro-o-cresol	PCB-1248 (Arochlor 1248)
N-nitrosodimethylamine	PCB-1260 (Arochlor 1260)
	PCB-1016 (Arochlor 1016)
	Toxaphene
	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)

RESPONSES TO QUESTIONS POSED BY USNRC IN SNM-362 LICENSE RENEWAL REVIEW

(from letter of 12/17/90)

- 1... Provide environmental data from 1984 to 1990 for vegetation, soil, surface water, TLDs, and air samples. Include a table listing the type of sample, frequency of collection, analysis required, and LLD for analysis.

Table 1-1: Environmental Sample Parameters

Sample Media	Collection Frequency	Analysis Method	LLD*
Grass	Monthly (growing)	Gamma Spec	see Table 1-2
Soil	Monthly (nongrowing)	Gamma Spec	see Table 1-2
Water	Monthly	Gamma Spec	see Table 1-2
		Liquid Scint(³ H)	4 X 10 ⁻⁷ μCi/cc
TLD	Quarterly	Thermoluminescence	less than 1 mR

*: These LLDs are conservatively assigned for documentation purposes. The actual operating values are normally substantially lower.

Table 1-2: Gamma Spec LLD's

NOTE: No sample of grass, soil, or water taken and analyzed between 1984 and 1990 showed activity above the listed LLD except for the case of ^{137}Cs , as noted below.

Nuclide	Soil ($\mu\text{Ci}/\text{gr}$)	Grass ($\mu\text{Ci}/\text{gr}$)	Water ($\mu\text{Ci}/\text{cc}$)
^{24}Na	2.7×10^{-7}	short ^A	2.2×10^{-9}
^{51}Cr	5.9×10^{-8}	7.0×10^{-8}	1.8×10^{-8}
^{56}Co	8.0×10^{-9}	1.1×10^{-8}	1.5×10^{-9}
^{59}Fe	1.8×10^{-8}	2.6×10^{-8}	2.7×10^{-9}
^{60}Co	8.4×10^{-9}	1.5×10^{-8}	1.5×10^{-9}
^{64}Cu	short ^A	short ^A	4.6×10^{-7}
^{65}Zn	2.0×10^{-8}	2.7×10^{-8}	2.9×10^{-9}
^{82}Br	4.5×10^{-8}	2.0×10^{-7}	2.0×10^{-8}
^{95}Zr	1.6×10^{-8}	1.9×10^{-8}	2.7×10^{-9}
^{95}Nb	7.9×10^{-9}	1.1×10^{-8}	1.6×10^{-9}
^{99}Mo	1.2×10^{-8}	2.2×10^{-8}	1.4×10^{-9}
^{99m}Tc	1.2×10^{-8}	2.2×10^{-8} ^C	3.9×10^{-9}
^{103}Ru	6.7×10^{-9}	8.5×10^{-9}	1.4×10^{-9}
^{106}Rh	6.4×10^{-8}	7.5×10^{-8}	1.2×10^{-8}
^{110m}Ag	1.1×10^{-8}	1.5×10^{-8}	2.1×10^{-9}
^{125}Sb	1.9×10^{-8}	2.0×10^{-8}	3.8×10^{-9}
^{131}I	8.5×10^{-9}	1.3×10^{-8}	1.4×10^{-9}
^{134}Cs	1.2×10^{-8}	1.2×10^{-8}	1.7×10^{-9}
^{137}Cs	detctd ^B	1.1×10^{-8}	1.5×10^{-9}
^{140}La	2.8×10^{-8}	7.0×10^{-8}	1.7×10^{-9}
^{140}Ba	2.1×10^{-8}	2.7×10^{-8}	3.6×10^{-9}
^{144}Ce	4.5×10^{-8}	4.5×10^{-8}	1.1×10^{-8}
^{152}Eu	8.3×10^{-8}	1.1×10^{-7}	1.2×10^{-8}

- A - $T_{1/2}$ is too short for measurement, given the required sample processing time.
- B - ^{137}Cs is present in detectable quantities in all environmental soil samples.
- C - As measured in equilibrium with parent.

Table 1-3: Water Analysis Results for 1984 - 1990 ($\mu\text{C}_2/\text{cc}$)

Sample Date	Site #7	Site #6	Clopper Road	Main Gate	Izank Walton	Rt #28	Kent Farm	Brick House ^B
6/85	8.0×10^{-7}							
11/85	3.3×10^{-6}	1.1×10^{-6}						
12/85	4.1×10^{-6}	2.4×10^{-6}						
1/86	9.7×10^{-7}	1.5×10^{-6}						
3/86		3.7×10^{-6}						
6/86		6.8×10^{-6}						
7/86		3.9×10^{-6}						
9/86	1.3×10^{-6}	9.7×10^{-6}						
10/86	1.5×10^{-6}	2.2×10^{-6}						
11/86	3.7×10^{-6}	7.9×10^{-6}	7.2×10^{-7}	7.3×10^{-7}	1.6×10^{-6}	1.1×10^{-6}	1.2×10^{-6}	
12/86		1.4×10^{-6}						
1/87	2.5×10^{-6}	6.9×10^{-6}	7.4×10^{-7}	1.2×10^{-6}	1.4×10^{-6}			
2/87		1.0×10^{-5}						
7/87	9.8×10^{-7}	2.4×10^{-6}						
9/87 ^C		9.7×10^{-5}	3.6×10^{-6}	4.6×10^{-5}		3.7×10^{-6}		
10/87	9.2×10^{-7}					2.3×10^{-7}		
11/87	3.1×10^{-7}	9.9×10^{-6}						
12/87		3.2×10^{-6}						
1/88		3.0×10^{-6}						
2/88		2.0×10^{-6}						
4/88		3.8×10^{-7}						
5/88		3.6×10^{-7}						
6/88		2.3×10^{-7}						
9/88		1.8×10^{-7}						
10/88	5.4×10^{-7}							
12/88	3.8×10^{-6}	1.3×10^{-6}						
1/89		2.6×10^{-7}						
2/89		6.9×10^{-7}						
5/89		5.0×10^{-7}						
6/89		4.3×10^{-6}						

Sample Date	Site #7	Site #6	Copper Road	Main Gate	Izaak Walton	Rt #28	Kent Farm	Brick House ^B
7/89		8.7 X 10 ⁻⁷						
8/89	1.6 X 10 ⁻⁷	9.4 X 10 ⁻⁷						
9/89		1.5 X 10 ⁻⁶						
10/89		8.2 X 10 ⁻⁷						
11/89		4.1 X 10 ⁻⁷						
12/89		1.4 X 10 ⁻⁶						
1/90		5.7 X 10 ⁻⁷						6.1 X 10 ⁻⁶ D
2/90		4.6 X 10 ⁻⁷						
3/90		1.5 X 10 ⁻⁷						
4/90		9.9 X 10 ⁻⁸						
5/90		4.1 X 10 ⁻⁷						
6/90		9.9 X 10 ⁻⁸						
7/90		1.3 X 10 ⁻⁷						
8/90	4.2 X 10 ⁻⁷	2.0 X 10 ⁻⁷						5.4 X 10 ⁻⁶ D
9/90	4.5 X 10 ⁻⁸	7.8 X 10 ⁻⁷						6.9 X 10 ⁻⁶ D
10/90	2.0 X 10 ⁻⁶	2.1 X 10 ⁻⁷						4.0 X 10 ⁻⁶ D
11/90	4.1 X 10 ⁻⁷	1.8 X 10 ⁻⁸						2.0 X 10 ⁻⁶ D
12/90								7.8 X 10 ⁻⁶ D

- A - Blanks represent results not statistically different from zero.
- B - This is a new sampling location, there is no data prior to initiation in 1990.
- C - Values for this period are based on daily weighted averages from multiple samples during the month.
- D - Positive indication in the ³H channel is due to radon in well samples.

Table 1-4: TLD Results for 1984 - 1990 (mR)

On-Site Perimeter Data

		Quarter	Second Quarter	Third Quarter	Fourth Quarter
1984	gross mR	27.6	39.7	24.1	38.9
	net mR	-0.5	-0.4	1.3	-0.1
1985	gross mR	29.0	26.0	28.0	19.7
	net mR	-0.7	-0.9	1.1	-2.0
1986	gross mR	20.0	29.0	24.0	22.9
	net mR	0.5	-0.1	0.6	0.5
1987	gross mR	30.2	26.4	16.5	32.0
	net mR	-1.0		1.8	1.4
1988	gross mR	24.6		30.2	22.5
	net mR	-1.9	1.8	0.4	-4.5
1989	gross mR	19.7	20.1	22.9	21.6
	net mR	1.7	1.6	2.9	1.2
1990	gross mR	19.7	21.9	23.8	NA
	net mR	2.3	3.6	4.8	NA

Note: "net mR" values are the difference between gross measurement values and gross measurement values for offsite locations. "NA" data are not available, at this time.

Table 2.3-2 (cont'd)

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NO	NOW	AVE.
Jan	8	10	10	9	9	9	9	9	9	9	9	9	8	7	8	8	8
Feb	10	10	10	9	9	9	9	9	9	9	9	9	7	7	8	8	8
Mar	9	10	10	9	8	8	8	9	10	10	4	7	7	8	9	9	9
Apr	19	11	15	10	10	9	8	9	8	8	6	7	10	11	12	10	9
May	10	10	10	9	9	10	9	10	10	7	7	7	10	12	10	10	10
Jun	11	11	9	8	10	9	10	9	10	7	7	10	14	12	11	10	10
Annual	10	11	10	9	9	9	9	10	10	8	8	9	13	11	11	11	10

Table 2.3-3 Annual Wind Direction Frequencies (%) During Precipitation

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NO	NOW	AVE.
10AM EST	3	4	4	3	3	2	3	3	4	5	5	5	3	2	4	3	4
10PM EST	2	2	3	2	2	1	2	2	3	4	4	3	2	3	4	4	3

Table 2.3-4 Annual Wind Direction Frequencies (%) During Inversions

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NO	NOW	AVE.
10AM EST	2	4	4	3	2	2	3	4	3	4	4	3	2	4	4	4	4
10PM EST	2	2	3	2	1	1	2	2	3	2	2	1	2	2	4	4	3

Table 2.3-5 Inversion Frequency (%)

Inversion Base	0-499 Ft.		500-999 Ft.		1000-1999 Ft.		Total
	10 AM	10 PM	6	6	17	16	
10 AM	7						30
10 PM	40				8		54

2.3.5 EXTREME WEATHER CONDITIONS. The probability that the reactor site will be affected by very heavy precipitation, high winds, or tornado is essentially the same as Washington. Sustained high wind speeds are infrequent in this area, and winds in excess of 80 miles per hour are almost invariably associated with severe thunderstorms or with hurricane centers passing near the area. In the 41 years, June 1905 to 1945, there were only two occurrences of gales in excess of 30 miles per hour which were sustained for 5 minutes or more. A peak wind gust of 100 miles per hour was recorded on June 9, 1928 during a violent thunderstorm.

Tornadoes are unusual in this portion of the country. In the 30 year period from 1916 to 1945 there have been only 13 reported tornadoes in the District of Columbia and the three adjacent counties. Thus the occurrence of a tornado at the reactor site is a possibility but has an extremely low probability.

Numerous tropical hurricanes, however, have passed over or near Washington, D.C. More than 60 hurricanes have influenced the area between 1899 and 1958. Eight such storms caused winds in excess of 40 miles per hour; nine resulted in a total rainfall in excess of 3 inches. One such storm deposited 8.87 inches of rain, 7.31 inches of which occurred in 24 hours.

The reactor site is, however, not more vulnerable to these weather extremes than any other location in the Virginia-Maryland area between Appalachian foothills and the Chesapeake Bay.

SHEETS COPIED FROM NBSR 9

2... Provide the isotopic breakdown of gaseous and liquid effluents for the period 1984 to 1990.

Table 2-1: Isotopic Breakdown of Effluents

Year	Gaseous		Liquid	
	Argon-41 (Ci)	Tritium (Ci)	Tritium (Ci)	β - γ (Ci)
1984	274	768	22.1	0.007
1985	852	234	14.4	0.002
1986	1,087	450	2.2	< 0.001
1987	727	1,154	117.7	0.003
1988	900	393	5.1	0.003
1989	328	461	2.9	0.004
1990	687	309	2.2	0.001

Gaseous ^{82}Br is also released in detectable quantities, but at levels less than 0.01% of ^{41}Ar and ^3H . Note that all these releases are as a result of the NIST Reactor and, hence, are releases under the Reactor license. Very low concentrations of ^{60}Co , ^{65}Zn , or ^{110m}Ag are occasionally observed in the liquid effluent; these are also the result of Reactor operations.

- 3... Provide the maximum annual dose equivalent to critical organ and whole body to a member of the public, based on environmental data.

Table 3-1: Calculated Dose Equivalent to a Member of the Public

Year	NUREG-1007 (mrem)	EPA-COMPLY (mrem)
1984	0.4	0.14
1985	1.0	0.3
1986	1.3	0.4
1987	1.0	0.3
1988	1.1	0.3
1989	0.4	0.14
1990	0.8	0.2

Both ^{41}Ar and ^3H use the whole body as the critical organ. The slightly more realistic EPA model results in reduced projections, but is still extremely conservative. All doses calculated using NUREG-1007 (and NBSR-9), were at a 400m distance, which is within the NIST boundary.

- 4... *Provide information concerning stack/vents with potential for emitting radioactive effluent (number, location, flow rate, distance to nearest boundary, distance and sector of nearest residence, and stack/vent height).*

There is one stack, at Building 235, the Reactor Building, with a possibility of releasing radioactive effluents. The stack has two plenums - one to the Reactor exhaust system and, thus, under the Reactor license, the other to the warm laboratory wing of the building. Each plenum exhausts at a rate of approximately 30,000 cfm. The stack is approximately 400 meters from the site boundary and the nearest resident is approximately 450 meters to the southwest.

- 5... *Provide possible/probable accident information including impact to the environment and public.*

As described in Section 4 of *Radiological Emergency Plan for Materials Licenses*, dated September, 1982, credible accidents could result only in a classification of "Notification of Unusual Event". Evaluations of situations involving radioactive materials in fires, explosions, transportation events, bomb threats, and natural disasters show that neither the environment nor the public would be impacted. No accumulation of fissile materials is permitted so criticality is not a problem.

- 6... *Provide a map showing environmental sampling locations.*

A map showing environmental sampling locations is appended to this document as Figure 2.

- 7... *Provide discharge permits for liquid and gaseous releases.*

The permit from WSSC for liquid releases is appended to this document. No permit for gaseous releases has been found necessary.

- 8... *Provide action levels for environmental samples and action taken if levels are reached.*

Should any sample measurement show 10% MPC, or should TLD results for a quarter show greater than ± 2 standard deviations from the average value observed for the past five years, a professional Health Physicist will review the data and recommend further action.

9... *For 1984, verify number of kiloliters of liquid effluent discharged to the sanitary sewer from Bldg 235.*

The records were checked and retotaled. The value reported in the 1985 and subsequent annual reports, 428 kl, is correct. The value reported in 1984, 382 kl, was in error and was later corrected. The activity totals remain the same.

10... *Provide information on the average meteorology for site.*

This data is published in NUREG-1007 and NBSR-9 and continues to be current. Figure 2.5 from NUREG-1007 and Table 2.3 from NBSR-9 are appended.

Item 11... *Provide information on sources of mixed hazardous/ radioactive waste and plans to handle this waste.*

Under license SNM-362 all proposed uses of radioactive material are reviewed and approved prior to the use of the material. The only form of mixed waste that has been generated in the past has been liquid scintillation counting solutions. Disposal of this waste is through a contractor licensed to process such waste.

Other processes or proposals under SNM-362 that might generate such waste are modified so that any waste that is generated is not classifiable as mixed waste.

There are non-licensed facilities that generate such waste, e.g., accelerators. This is primarily in the form of activated materials containing lead. Disposal of this material will be via EPA and NRC approved facilities; currently the items so classified are stored on site.

During an asbestos remediation effort completed recently, asbestos that was slightly contaminated with tritium was accepted and dealt with by an authorized contractor.

Item 12... *Provide names and titles of NIST personnel involved with the facility tour.*

David Brown	Nuclear Engineer
Douglas Eagleson	Health Physicist
Thomas Hobbs	Supervisory Health Physicist
Dr. Chris E. Kuyatt	Chief, Center for Radiation Physics (Chairman, Radiation Safety Committee)
Timothy Mengers	Health Physicist
Lester Slaback	Supervisory Health Physicist
James Tracy	Health Physicist
William Webber	Health Physicist

Safety Evaluation Report

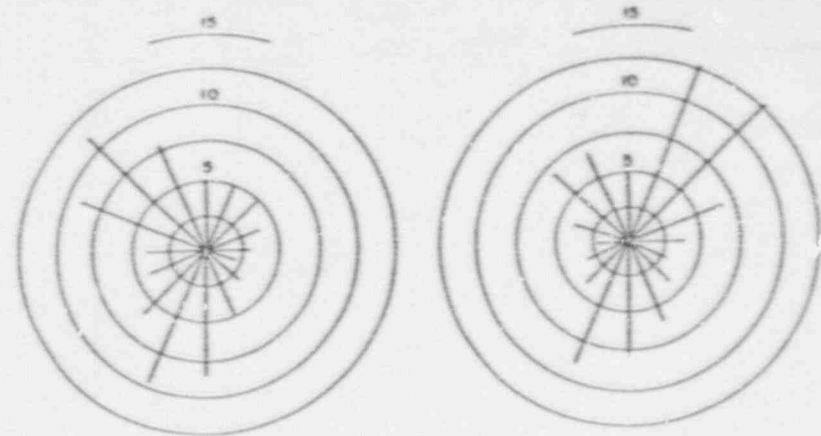
related to the license renewal
and power increase for the
National Bureau of Standards Reactor

Docket No. 50-184

**U.S. Nuclear Regulatory
Commission**

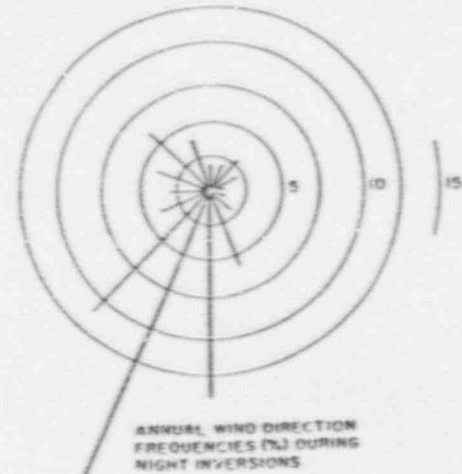
Office of Nuclear Reactor Regulation

September 1983



MONTHLY WIND DIRECTION FREQUENCIES (%)

ANNUAL WIND DIRECTION FREQUENCIES DURING PRECIPITATION



ANNUAL WIND DIRECTION FREQUENCIES (%) DURING NIGHT INVERSIONS

Figure 2.5 Annual wind rose

cc'd Larry



WASHINGTON SUBURBAN SANITARY COMMISSION

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Department of Engineering • 8103 Sandy Spring Road • Laurel, MD 20707

Industry I.D. No. 06233

RECEIVED
MAY 24 1989
COMMUNICATIONS SECTION

DISCHARGE AUTHORIZATION

Industry Name: National Institute of Science and Technology
Correspondence Address: Building 301 Room 124
Gaithersburg, Maryland 20899
Site Address: Muddy Branch Road
Gaithersburg, Maryland 20899

In accordance with the provisions of the Washington Suburban Sanitary Commission Plumbing and Gas Fitting Regulations Chapter 9, "Industrial Discharge Control", a copy of which is enclosed, the above named company, hereinafter referred to as "Industrial User", is hereby authorized to discharge wastewater into the WSSC sewer system, in compliance with the limitations, reporting requirements and other conditions specified herein. In the event that this Discharge Authorization expires, is revoked or otherwise made invalid, all industrial discharges to the sewer system shall immediately cease.

This Authorization is granted to the Industrial User, at the specified site address, by the Washington Suburban Sanitary Commission (WSSC), for the time period set forth as follows:

Effective date: June 1, 1989

Expiration date: June 1, 1992

Issued by: John Mathers
John Mathers, Section Head
Code Enforcement Section

SECTION I
GENERAL CONDITIONS

1. General Discharge Prohibitions

The Industrial User shall meet all requirements of Section VII of the WSSC Plumbing and Gas Fitting Regulations and any additional limitations established by the WSSC under its authority.

2. Right of Entry

- a. The Industrial User hereby grants WSSC right of entry to its premises, for the purpose of inspecting any wastewater generating processes, chemical or wastewater storage facilities and pretreatment facilities during reasonable hours, to perform monitoring, inspections or sampling. Reasonable hours shall be construed as any time the Industrial User is operating a process which results in a wastewater discharge.
- b. WSSC may also enter premises for the purpose of collecting wastewater samples or for reviewing records required to be kept of the wastewater discharge from the premises.

3. Accidental Discharges

The Industrial User shall notify WSSC immediately, in the event of any accident, negligence, or other occurrence which is or may result in a violation of discharge limitations; by telephoning the Code Enforcement Section at 441-4019 (8:15 a.m. - 5:00 p.m., Mon-Fri) or the Maintenance Trouble Desk at 699-4555. The notification shall include the location, date and time of the discharge, type of waste, concentration and volume, and corrective action taken.

Within 24 hours the Industrial User shall file a written report stating:

- a. A description of the accidental discharge, its cause and impact on the Industrial User's compliance status.
- b. The duration of the discharge, including exact dates and times of noncompliance, and if the noncompliance continues, the time by which compliance is expected to occur.
- c. A description of all steps taken or to be taken to reduce, eliminate and prevent recurrence of future accidental discharges or other conditions of noncompliance.

4. Chemical Handling, Process/Production Changes

Any changes in chemical usage, storage, production rate or processes which may alter the quantitative or qualitative characteristics of discharges must be reported to the WSSC before such changes are made.

5. Self-Monitoring Reports

Industrial Users required to submit self-monitoring reports shall submit the reports in the format specified by the WSSC or, at a minimum, provide the following information:

- a. The exact place, date and time of sampling;
- b. The date(s) the analyses were performed;
- c. The person(s) who performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of all required analyses;
- f. The measured flow of process wastewater during the sampling period.
- g. Waste sludges, chemicals, hazardous waste, greases, etc. hauled off-site specifying:
 1. waste description/source;
 2. disposal date;
 3. quantity;
 4. disposal site;
 5. waste hauler name, address and phone number

In the event sampling and analysis performed by the industrial user indicates a violation, the industrial user shall repeat the sampling and analysis and submit the result of both analyses to WSSC within 21 days.

6. Signatory Requirements

Signature of an Authorized Company Representative is required for all reports. An Authorized Company Representative is defined as:

- a. A principal executive officer of at least the level of Vice President if the Industrial User is a corporation.
- b. A general partner or proprietor
- c. A duly authorized representative of the individuals listed in (a) or (b) if such representative is responsible for the operation from which the discharge originates.

7. Records Retention

a. The Industrial User shall retain, for a minimum of 3 years, any records, books, documents, memoranda, reports, correspondence and any summaries thereof, relating to monitoring, sampling, and chemical analyses made by or on behalf of the Industrial User in connection with its discharge. Such documents shall be available for inspection during normal business hours to the WSSC, State or Federal Government.

b. All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the Commission shall be retained and preserved until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

8. Confidentiality

Proprietary information contained in reports will be deemed confidential upon written request from the Industrial User. Effluent data is public record and shall not be withheld.

9. Reporting Address

All reports required by this permit shall be submitted to the Commission at the following address:

Washington Suburban Sanitary Commission
Code Enforcement Section
8103 Sandy Spring Road
Laurel, MD. 20707

10. Sampling Locations

WSSC reserves the right to require the Industrial User to install a manhole or other suitable structure for the purpose of monitoring process and/or facility discharges. Sampling locations shall be made available to WSSC during reasonable hours. Reasonable hours shall be construed as any time the Industrial User is operating a process which results in a wastewater discharge.

11. Analytical Protocol

All wastewater analyses shall be performed in accordance with approved EPA methods specified in 40 CFR 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act".

12. Disposal of Pretreatment Sludges and Spent Chemicals

The disposal of sludges and spent chemicals generated shall be done in accordance with Section 405 of the Clean Water Act and Subtitles C & D of the Resource Conservation and Recovery Act (RCRA).

13. Dilution

Increasing the usage of potable or process water, by the Industrial User, in any manner to achieve compliance with limitations is prohibited.

14. Falsifying Information

Any person who knowingly makes any false statements, representation or certification in any application, records, plan or other document filed or required to be maintained pursuant to these regulations, or who falsifies, tampers with or knowingly renders inaccurate any monitoring device or method required under these regulations, shall be prosecuted by the WSSC according to the provisions of Section 201 and 221 of the WSSC's Plumbing and Gas Fitting Regulations.

15. Revocation of Permit

The Authorization issued to the Industrial User may be revoked when, after inspection, monitoring or analysis it is determined that the discharge of wastewater to the sanitary sewer is in violation of Federal, State or local laws, ordinances or regulations. Additionally, falsification or intentional misrepresentation of data or statements pertaining to any required report shall be cause for permit revocation.

16. Penalties

Any of the following penalties, in accordance with Section VII of the WSSC Plumbing and Gas Fitting Regulations and State and Federal Regulations, may be imposed upon the Industrial User for failure to comply with the terms or conditions of this Discharge Authorization:

- a. Publication of Industrial User's name and nature of violation in the largest daily local newspaper.
- b. Revocation of Discharge Authorization.
- c. Termination of water and/or sewer service.
- d. Fine and/or imprisonment, under Section 212, Chapter 122 of the Acts of the General Assembly of the State of Maryland.

17. Modifications and Revisions

The terms and conditions of this Authorization may be changed at any time where limitations or requirements pertaining to WSSC, State or Federal regulations are modified or other just cause exists.

18. Limitations of Transferability

Discharge Authorizations are issued to the Industrial User for specified operations at the time of issuance and shall not be assigned to another industry or transferable to any other location.

19. Severability

The provisions of this Discharge Authorization are severable. If any provision of this Authorization or the application thereof is held invalid, the application of such provision to other circumstances, as well as the remainder of the Authorization shall not be affected thereby.

20. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State or local laws.

SECTION II
SPECIAL CONDITIONS

1. Reporting Requirements

A Periodic Compliance Report shall be submitted on a semiannual basis prior to the following dates:

Report Due Dec. 15th for: o FIRST SAMPLING PERIOD
June 1st - Nov 31st

Report Due June 15th for: o SECOND SAMPLING PERIOD
Dec 1st - May 31st

It is the responsibility of the Industrial User to schedule sampling in advance of the reporting dates to allow for analysis of samples and submittal of the Periodic Compliance Report by the June 15 and December 15 dates. Sampling and reporting requirements shall be in effect for the duration of the existence of the regulated process(es).

SUBMIT ANALYSIS ON THE "INDUSTRIAL USER EFFLUENT ANALYSIS REPORT FORM". (THE ORIGINAL DATA FROM THE LAB SHOULD BE KEPT ON FILE FOR INSPECTION.) ANALYSIS SUBMITTED IN ANY OTHER FORM WILL NOT BE ACCEPTED !

2. SAMPLING REQUIREMENTS

- o SAMPLING LOCATION: Samples shall be taken at the point designated by WSSC which shall be permanently labeled as "WSSC IWMP". Facility discharges shall be sampled at the metering vault located south of Gate E.
- o FREQUENCY AND COLLECTION METHOD: During each sampling period the industrial user shall sample the specified effluent wastestream for (4) four days of production.

Samples shall be collected using flow proportional techniques during the entire production time. Where flow proportional sampling is not feasible a time proportioned sample may be taken consisting of 200 mls (minimum) per 15 minutes during the entire production time. The final sample for each day shall be a composite of all sample taken that day. The total composite sample volume shall consist of 3 liters minimum. If batch discharges are to occur during the reporting period, sampling should be scheduled to coincide with these discharges.

- o SPECIAL INSTRUCTIONS: If analysis for cyanide, total toxic organics, or BOD, FOG, COD, is required, samples for these pollutants shall consist of 1 grab for the days production.
- 3. Restrictions: National Institute of Science and Technology Safety Director or designated representative shall notify the WSSC trouble desk if heavy water loss exceeds the amount specified in the facility's reactor technical specifications.

SECTION III
DISCHARGE LIMITATIONS

- A. The Industrial User shall comply with WSSC and/or Federal Limitations for effluent concentrations as listed on Table I.

- B. Limitations listed in this section are not comprehensive. Restrictions may be placed on other substances when the concentration or characteristic is sufficient to adversely affect any portion of the WSSC's collection system, treatment system, or workers.

SECTION III

TABLE I

WSSC DISCHARGE LIMITATIONS

<u>POLLUTANT</u>	<u>DAILY MAXIMUM</u>	<u>COMPLIANCE SAMPLING REQUIRED</u>
Cadmium (total)	1.3 mg/l	<u>X</u>
Chromium (total)	7.0 mg/l	<u>X</u>
Copper (total)	4.5 mg/l	<u>X</u>
Cyanide (total)	1.3 mg/l	<u>X</u>
Lead (total)	0.7 mg/l	<u>X</u>
Nickel (total)	4.1 mg/l	<u>X</u>
Silver (total)	1.2 mg/l	<u>X</u>
Zinc (total)	4.2 mg/l	<u>X</u>
<u>Organics</u>		
Total Toxic Organics (2)	2.13 mg/l	<u>X</u>
<u>Conventionals</u>		
Dissolved Solids	1500 mg/l	_____
Suspended Solids	400 mg/l	_____
Total solids	1900 mg/l	_____
BOD (5 day)	300 mg/l	_____
COD	500 mg/l	_____
Fats, oils, grease	100 mg/l	_____
pH	6.0 - 10.0 units	<u>X</u>
Temperature	150 F	_____
Tritium	1.0 x 10 ⁻¹ microcuries/ml	<u>X</u>

- (1) This list shall not be construed as a complete list of restricted materials. Restrictions may also be placed on other materials when the concentration of these materials is sufficient to adversely affect any portion of the collection or treatment system.
- (2) Total Toxic Organics shall consist of the summation of toxic organics with values greater than ten (10) micrograms per liter. Toxic organics shall consist of the EPA designated priority pollutants excluding inorganics and cyanide.
- (3) Fats, wax, grease, or oils of animal or vegetable origin, whether emulsified or not.
- (4) All parameters indicated by "x" shall be analyzed and reported.