GPU Nuclear

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Writer's Direct Dial Number:

August 20, 1982

Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Crutchfield:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Radiological Effluent Technical Specifications (RETS) and Offsite Dose Calculation Manual (ODCM) - Oyster Creek Nuclear Generating Station

Reference: Letter dated March 16, 1982, D. M. Crutchfield NRC, to P. B. Fiedler, GPUN

This letter is in response to your correspondence of March 16, 1982, forwarding the results of the initial review of our proposed RETS. At the meeting held February 3-4, 1982, with representatives of the Franklin Research Institute and the NRC, we agreed to clarify several items or present justification for deviations. Attachment 1 provides responses to your list of major deficiencies identified in the above referenced correspondence. These responses are intended for informational purposes only and may or may not be included in our final submittal. Our schedule for submitting our final RETS and ODCM will be provided to you by separate correspondence at a later date.

Should you have any questions concerning this matter, please contact Mr. Jim Knubel, Manager BWR Licensing at (201) 299-2264.

Very truly yours,

IE25

P. B. Fiedler
Vice President and Director
Oyster Creek

cc: Mr. Ronald C. Haynes, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

ATTACHMENT 1

1. The requirement for alarm/trip setpoints on liquid and gaseous effluent monitors was not addressed. The surveillance requirement for source check is missing.

Response

The alarm/trip setpoints for the liquid effluent monitor are controlled by Procedures 351.1 and 351.2, the Augmented Off Gas ventilation monitor by Procedure 350.4 and the stack monitor by the standing orders. Source and channel checks of the monitors are controlled by operations daily surveillance log sheets. Monitor calibrations are performed in accordance with plant calibration procedures at a frequency controlled by the master surveillance schedule. Surveillance frequencies are in accordance with the requirements of RETS.

2. The requirement for tank level indicating devices for outdoor liquid holdup tanks was not addressed.

Response

Tank level indicating devices and location of outdoor tanks are indicated below.

Tank Name	Tank No.	Level Transmitter	Location
High Purity Waste Sample Tanks	1) HP-T-2A	a) HP-LT-071A	NRW
		b) LT-IM116A	ORW
	2) HP-T-2B	a) HP-LT-071B	NRW
		b) LT-IM116B	ORW
Chemical Waste	1) WC-T-3A	a) WC-LT-062A	NRW
		b) LT-IM66A	ORW
	2) WC-T-3B	a) WC-LT-062B	NRW
		b) LT-IM66B	ORW
Waste Surge Tank	1) HP-T-3	a) LT-051	NRW
		b) LT-IM91	ORW

3. The following deviations in the sampling and analysis program for liquid and gaseous effluents were identified:

a. Lower Limits of Detection (LLDs) were not specified.

b. Principal gamma emitters in the gamma isotopic analysis were not specified.

Response

The following are typical LLD's for the isotopes in Table 4.11-1F using a normal counting time and geometry.

Mn-54	7.35E-7	uCi/cc
Fe-59	1.30E-6	uCi/cc
Co-58	7.39E-7	uCi/cc
Co-60	7.74E-7	uCi/cc
Zn-65	1.44E-6	uCi/cc
Mo-99	3.74E-6	uCi/cc
Cs-134	4.92E-7	uCi/cc
Cs-137	5.92E-7	uCi/cc
Ce-144	5.15E-6	uCi/cc
I-131	3.66E-7	uCi/cc

c. Sampling for I-131, Sr-89, Fe-55 and dissolved noble gases in liquid samples was not stipulated.

Response

At present, we sample and count for I-131 and entrained and dissolved gamma emitting gases on every batch.

Strontium 89 is analyzed monthly on a composite sample.

No analysis is performed for Fe-55. However, a question has been issued through Nuclear Operation and Maintenance Information Services (NOMIS) inquiring about how other plants are addressing this.

d. A sampling and analysis program of service water effluents was not provided.

Response

A sample of the reactor building service water is taken once per month at the main header discharge to the canal and analyzed for gamma isotopic activity. The Reactor Building Closed Cooling Water System is cooled by the service water. Samples of the RBCCW are analyzed weekly for gross beta and gamma isotopic activity. A radiation monitor is located on the service water line, downstream of the RBCCW heat exchanger. If the RBCCW sample activity or the radiation monitor show an increase, additional samples of service water are taken at the heat exchanger and analyzed.

The Augmented Off Gas (AOG)/New Radwaste (NRW) service water is not analyzed routinely for radioactivity. The closed cooling water systems of the AOG and NRW are sampled monthly and analyzed for gross beta, gross alpha and tritium. If the closed cooling water systems started showing activity, samples of the service water would be analyzed also.

Response (Continued)

All liquid radwaste released to the discharge canal through the reactor building service water is analyzed batch wise prior to release. It is then released at a predetermined rate to insure compliance with 10 CFR 20 limits.

The emergency service water cools the containment spray heat exchangers. This water is not sampled since it is only run during surveillance testing of the containment spray pumps.

e. Sampling for I-131, I-133, Sr-89, and Sr-90 in gaseous effluents was not stipulated.

Response

At present, charcoal and particulate filters from the stack and the Augmented Off Gas (A.O.G.) Building are removed twice/week and counted for I-133 and I-131. Composites are sent to a vendor once/month for SR-89 and Sr-90 analysis.

f. Tritium sampling over the spent fuel pool area was not stipulated.

Response

The ventilation exhaust from the fuel pool is vented up to the stack. This is combined with the Off Gas, Turbine Building Ventilation and New and Old Radwaste Ventilation Flows. This stream is sampled 1/month for a period of approximately 4 days.

4. The requirement for effluent monitors located in the Offgas Building and in the New Liquid/Solids Radwaste Building was not addressed.

Response

The Off Gas Building Ventilation Exhaust System Monitor is described as follows:

	Minimum Channels	Applicability	Action
a) Noble Gas Activity Monitor	(1)	At All Times	123
b) Iodine Sampler	(1)	At All Times	127*
c) Particulate Sampler	(1)	At All Times	127*
d) Sample Flow Measuring Device	(1)	At All Times	122

Please note, there is no flow measuring device for building ventilation flow in Augmented Off Gas.

Additionally, Liquid Solid Radwaste will not be included because the building effluent is monitored by the stack monitor.

*Continuous alternate sample started within four (4) hours of determination of inoperability.

5. Appendix I calendar quarter dose limits were not addressed.

Response

Appendix I calendar quarter dose limits shall be as stated in Sections 3.11.2.1, 3.11.2.2*, and 3.11.2.3 of the Model BWR Technical Specifications.

*The requirement for reducing dose design objectives based on expected public occupancy of areas is under consideration.

6. The requirement for monthly dose calculations was not addressed.

Response

The staff of the Oyster Creek Environmental Controls Department will be performing a technical analysis to determine the feasibility of monthly versus quarterly dose calculations. This task requires that the radiological, meteorological, and computer science be researched to determine the need for monthly versus quarterly dose calculations. Analysis should be completed by July 1983.

7. The release rate limits for noble gas releases and for iodine releases may not conform with the required limits specified in the Model RETS.

Response

Oyster Creek Technical Specifications limit the noble gas release rate in accordance with the equation $Q = \frac{0.21}{E}$ Ci/sec where Q is the stack release rate (Ci/sec) and E is the average gamma energy per disintegration (Mev/dis). The release rate of iodines and particulates with half lives longer than eight days is limited to 4 uCi/sec.

In addition, annual releases are limited in accordance with 10 CFR 50 Appendix I guidelines.

8. Requirements for "operability" of the liquid radwaste treatment system, the gaseous radwaste treatment system, and the ventilation exhaust systems are not addressed fully in the proposed RETS.

Response

a) Operability of the liquid radwaste treatment system shall be as stated in sections 3.11.1.3, 4.11.1.3.1, and 4.11.1.3.2 of Model Technical Specifications.

The liquid radwaste treatment system shall be demonstrated operable by operating the liquid radwaste treatment system equipment for at least 120 minutes (2 hours) at least once per 92 days unless the liquid radwaste system has been utilized to process radioactive liquid effluents during the previous 92 days.

Response (Continued)

b) The gaseous radwaste treatment system shall be in operation when the main condenser air ejector system is in operation except during plant startup or shutdown with reactor power less than 50 percent of rated. In addition, the gaseous radwaste treatment system need not be in operation during end of cycle coast down periods when the system can no longer function due to low off gas flow rates.

c) The Standby Gas Treatment System shall be used to reduce radioactive materials in gaseous waste during drywell purging if the projected doses due to purging of the drywell when averaged over 31 days would exceed 0.3 mrem to any organ.

9. Commitment for an NRC-approved Process Control Program was not specified.

Response

The Oyster Creek Process Control Plan will be made available for review by the NRC, however, we do not believe NRC approval is appropriate.

10. The locations of environmental samples in the Radiological Environmental Monitoring Program were not given and should be included in the ODCM.

Response

The locations of environmental sampling stations in the Radiological Environmental Monitoring Program are provided in Attachment 2.

11. The requirement for 40 stations for measuring the direct radiation in the environment was not fully addressed.

Response

The 18 plus 2 background stations (total 21) locations for monitoring direct radiation were carefully selected to provide thorough radiological environmental data for the areas around the OCNGS. It should be noted that the recommended 40 direct radiation monitoring stations are for a (hypothetical) landbound station with uniform population distribution and assumed limitless highway access. The Oyster Creek Nuclear Generating Station, however, is almost completely bounded to the east by Barnegat Bay and has several sectors to the west where access and population are virtually absent. Presently, all populated areas around the OCNGS have adequate direct radiation monitoring provisions.

12. LLDs in the Radiological Environmental Monitoring Program were not specified.

Response

The following is a table of LLDs currently used in the Oyster Creek Radiological Environmental Monitoring Program. These LLDs are subject to change either by contract modification with the vendor or by technical reevaluation.

MEDIA	ANALYSIS	MAXIMUM ALLOWABLE LLD
AIR PARTICULATE	GROSS BETA	0.01 p/Ci/m^3
	GROSS ALPHA	1.00 E-3 pCi/m^3
	GAMMA SCAN:	
	Cs-134	1.00 x E-3 pCi/m^3
	Cs-137	1.00 x E-3 pCi/m^3
	STRONTIUM-89, 90	1.00 E-4 pCi/m^3
AIR IODINE	I-131	7.00 E-2 pCi/m^3
PRECIPITATION	GROSS BETA (SUSPENDED)	0.70 pCi/L.
	GROSS BETA (DISSOLVED)	0.70 pCi/L.
	Sr-89	5.00 pCi/L.
	Sr-90	1.00 pCi/L.
	H-03	200.00 pCi/L.
	GAMMA SCAN:	
	Mn-54	15.0 pCi/l
	Fe-59	30.0 pCi/l
	Co-60	15.0 pCi/l
	Co-58	15.0 pCi/l
	Zn-65	30.0 pCi/l
	Zr-95	10.0 pCi/l
	Nb-95	10.0 pCi/l
	Cs-134	15.0 pCi/l
	Cs-137	15.0 pCi/l
	La-140	15.0 pCi/l
	Ba-140	15.0 pCi/l

13. The Interlaboratory Comparison Program requirements were not addressed.

Response

The main (Radiation Management Corporation) and QC (Teledyne Isotopes) REMP laboratories are participants in the NRC sanctioned USEPA Laboratory Intercomparison Crosscheck Program. The data from these programs are received at Oyster Creek Environmental Controls as contained in the periodic QA reports contractually required of each vendor. Further information/verification can be obtained from the Oyster Creek Project Leader for each vendor:

MAIN LABORATORY

Mr. Richard Sha
Radiation Management Corporation
3508 Market Street, Suite 400
Philadelphia, Pennsylvania 19104
(215) 243-2950

QC LABORATORY

Dr. J. David Martin
Teledyne Isotopes
50 VanBuren Ave.
Westwood, NJ 07675
(201) 664-7070

14. The proposed RETS do not include the required site boundary figures for liquid and gaseous effluents.

Response

A base figure removed from Sectior II (Figure II-2-2) of the FDSAR, has been annotated referencing the required release points, and is enclosed as Attachment 3.

15. The Model RETS requirements for audits and written procedures were not addressed in the proposed RETS.

Response

Oyster Creek Technical Specifications, Section 6.5.3.5a states "Audits of... the conformance of facility operations to all provisions contained within the Technical Specifications and applicable license conditions (will be done) at least once per year.

16. The Semiannual Release Reports do not address the requirements for reporting "solid waste shipped offsite".

Response

This item is addressed in the Oyster Creek Nuclear Generating Station Effluent Release Report. Table 7 for 1981-1982 is enclosed as Attachment 4.

17. Commitment for "Prompt Notification Reports" for offsite release rates which exceed set limits and for outdoor tanks which exceed the curie limits was not addressed.

Response

Limits for offsite release rates and for outdoor tanks which exceed established curie limits are described in Section 3.6.A, 3.6.B, and 3.6.C, of our Technical Specifications. Releases or curie content which exceed these limits would be reported in accordance with Section 6.9 "Reporting Requirements" of our Technical Specifications.

18. Changes to the Process Control Program and to the ODCM were not addressed in the proposed RETS.

Response

Changes to the Process Control Program and the ODCM will be controlled per Oyster Creek procedures.

19. The Model RETS Administrative Control Section 6.15, "Major Changes to Radioactive Waste Treatment Systems," was not included in the Licensee's proposed RETS.

Response

Major changes to Oyster Creek's Radioactive Waste Treatment System will be done in accordance with 10 CFR 50.59, "Changes, Tests and Experiments."

OYSTER CREEK STATION
ENVIRONMENTAL MONITORING STATIONS
LOCATION AND SAMPLE TYPE COLLECTED

STATION NUMBER		SAMPLE COLLECTED
1	Forked River, N.J. - Oyster Creek Meteorological Tower	APT, AIO, RG, RWA, VGTN, SOIL
T1	Forked River, N.J. - Oyster Creek Meteorological Tower	RG
2	Pinewald, N.J. - Route #9 at JCP&L Company Pinewald Substation north of Forked River, N.J.	APT, AIO, RG, RWA, VGTN, SOIL
3	Island Beach State Park, N.J. - Near old Coast Guard Station	APT, AIO, RG, RWA, VGTN, SOIL
4	Barnegat, N.J. - Route #534, Windward at Barnegat, first road West of Parkway Exit	APT, AIO, RG, RWA, VGTN, SOIL
5	Forked River, N.J. - Garden State Parkway Northbound Entrance to Holiday House	APT, AIO, RG, RWA, VGTN, SOIL
6	Forked River, N.J. - Lane Place behind St. Pius X Catholic Church	RG
7	Waretown, N.J. - Compass Road, second pole North of Bay Parkway	RG
8	Waretown, N.J. - Route #9 at the Waretown Substation	RG
9	Waretown, N.J. - Route #532, North side of road at Parkway	RG
10	Toms River, N.J. - Route #37 East, adjacent to "Eastern Off Road Supply"	RG
11	Harvey Cedars, N.J. - Long Beach Blvd. and East 70th Street, Long Beach Island	RG
12	Cedar Run, N.J. - Route #9, East of Assembly of God Church	RG
13	South Toms River, N.J. - Dover Road, next to last pole traveling West on North side	RG
14	Lakewood, N.J. - Larrabee Substation, just off Route #547 on Randolph Road	RG

OYSTER CREEK STATION
ENVIRONMENTAL MONITORING STATIONS
LOCATION AND SAMPLE TYPE COLLECTED

STATION NUMBER		SAMPLE COLLECTED
15	New Egypt, N.J. - Route #539, last pole on South side, adjacent to "Bomarc" Site	RG
16	Intersection of Route #563 and Route #72, two poles South	RG
17	New Gretna, N.J. - Route #563, 2 miles North, next to High Voltage Line	RG
18	Forked River, N.J. - Lacey Road, Captain Richie's Marina	WWA
19	Forked River, N.J. - 1015 Inland Road, Forked River Beach	WWA
20	Forked River, N.J. - Finninger Farm at Environmental Lab	WWA
21	Waretown, N.J. - 215 Dock Avenue, Sands Point Harbor	WWA
22	Waretown, N.J. - 1014 Long John Silver Way, Skippers Cove	WWA
23	Barnegat Bay - Off Stouts Creek, approximately 400 yards SE (150°) of FL "1" (Heading on BWN "D")	SWA, AQS, CLAM
24	Barnegat Bay - Approximately 250 yards SE (180) of FL "3" (Heading on N "66")	SWA, AQS, CLAM
25	Barnegat Bay - Off Holiday Harbor; approximately 200 yards SE (140°) of the Lagoon Mouth	SWA, AQS, CLAM
26	Forked River, N.J. - South Branch of Forked River, North of Bridge to Visitor Center	SWA, AQS
27	Forked River, N.J. - Downstream of Oyster Creek Fire Pond, approximately 10 yards	SWA, AQS
28	Forked River, N.J. - Lacey Road and the Garden State Parkway	CROP

OYSTER CREEK STATION
ENVIRONMENTAL MONITORING STATIONS
LOCATION AND SAMPLE TYPE COLLECTED

STATION NUMBER		SAMPLE COLLECTED
29	Barnegat, N.J. - Route #534 and the Garden State Parkway	CROP
30	Forked River, N.J. - Finninger Farm along Fence	CROP
31	Manahawkin Bay - Approximately 25 yards SE (140°) of C "23" and N "24"	SWA, AQS, CLAM
32	Oyster Creek - Mouth of Creek midway between Bulkhead on North Shore and South Shore of Creek	SWA, AQS
33	Oyster Creek - Approximately 1200 yards East of Route #9 Bridge, in middle of channel, directly South of Bulkhead running perpendicular to North Shore	SWA, AQS
A	Allenhurst, N.J. - JCP&L Company District Headquarters, on roof	APT, AIO, RG, RWA
C	Cookstown, N.J. - Route #528 Spur, at JCP&L Company District Dispatcher	APT, AIO, RG, RWA
H	Hammonton, N.J. - Egg Harbor Road, at the Atlantic City Electric District Dispatcher	APT, AIO, RG, RWA

APT = Air Particulate

AIO = Air Iodine

RG = Radiogas/Direct Radiation

RWA = Precipitation

WWA = Well Water

SWA = Surface Water

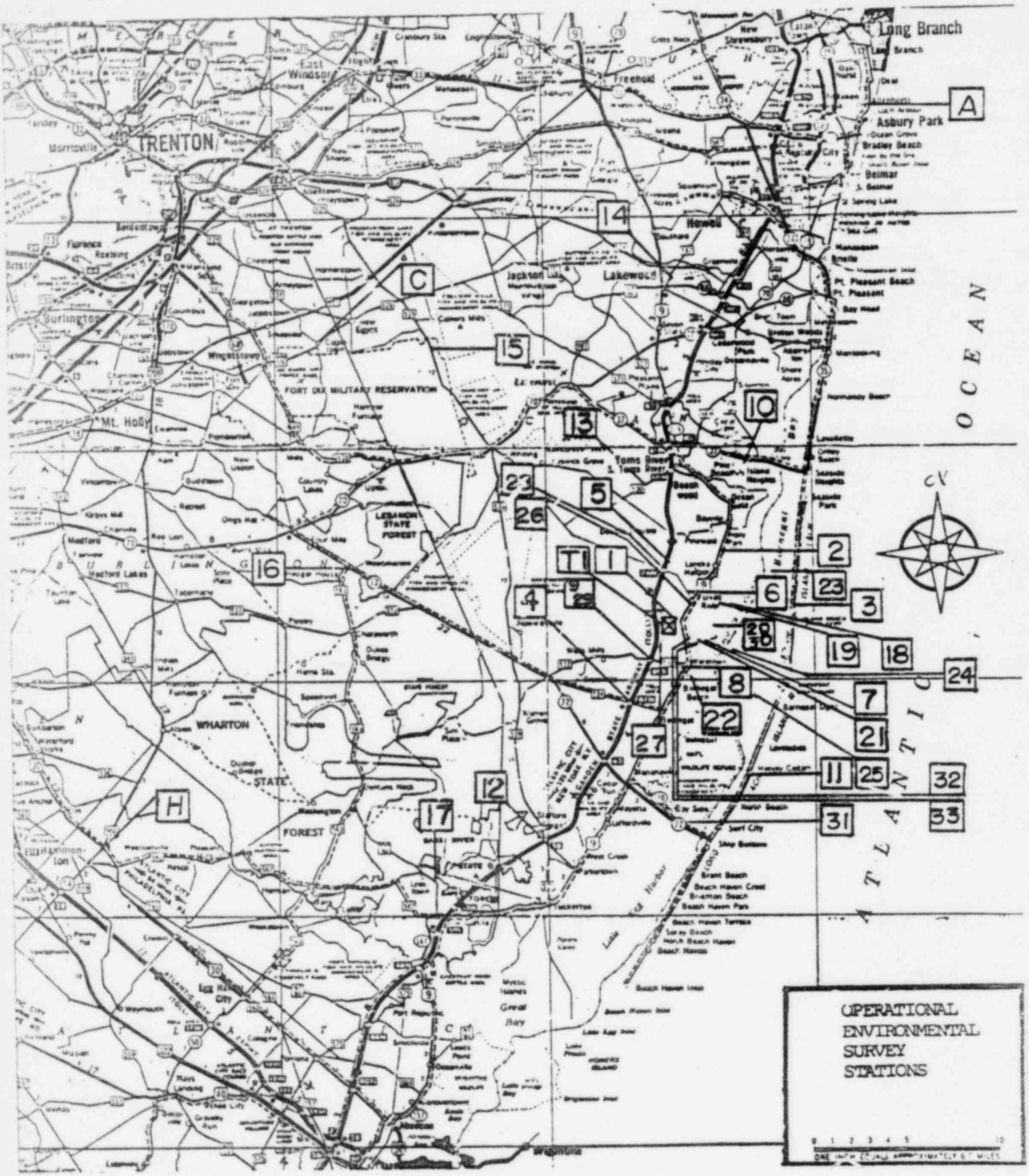
AQS = Aquatic Sediment

CLAM = Clams

CROP = Pasture/Crops

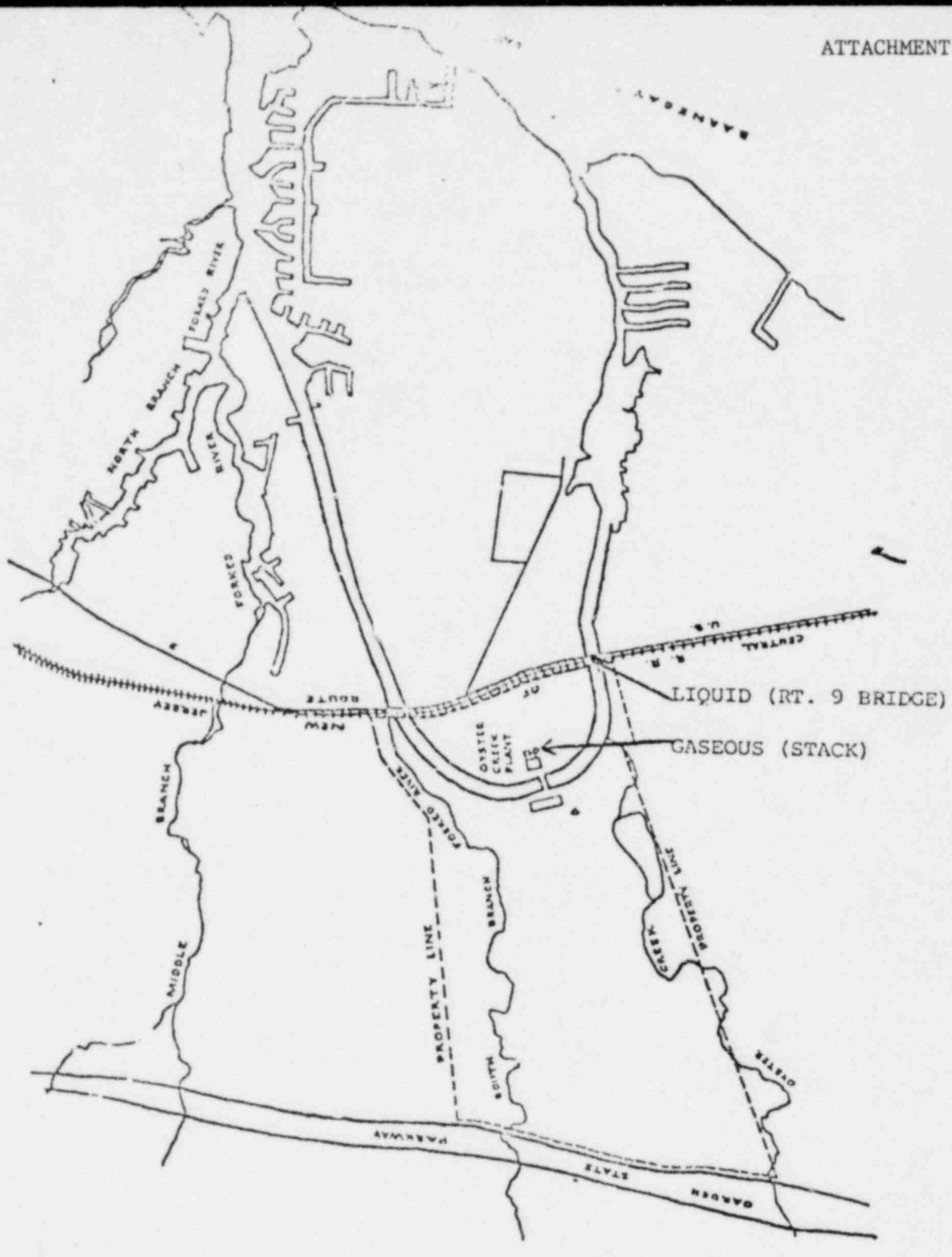
VGTN = Vegetation

SOIL = Soil



OYSTER CREEK NUCLEAR GENERATING STATION

FIGURE 1



RETS RESPONSE FIGURE 1

SITE BOUNDARY LOCATIONS FOR GASEOUS AND LIQUID EFFLUENTS

OYSTER CREEK NUCLEAR POWER PLANT UNIT NO. 1 - FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
Oyster Creek Site - Immediate Area
FIGURE II-2-2

TABLE 7
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1981-2
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. Solid waste shipped offsite for burial or disposal (not irradiated fuel)

1. Type of waste	Unit	6-month period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	2.21 E2 1.29 E2	5.0 E1
b. Dry compressible waste contaminated equip., etc.	m^3 Ci	6.26 E2 3.51 E1	5.0 E1
c. Irradiated components, control rods, etc.	m^3 Ci	NONE	
d. Other (describe)	m^3 Ci	NONE	

2. Estimate of major nuclide composition (by type of waste)	Percentage	Activity (Ci)	MDL (Ci)
a. Cobalt-60	3.2 E1	4.13 E1	1.69 E-10
Strontium-89	2.9 E1	3.74 E1	5.00 E-11
Manganese-54	8.4	1.08 E1	1.34 E-10
Barium-140	4.0	5.16	4.06 E-10
Iodine-133	3.6	4.64	9.78 E-11
b. Cobalt-60	6.3 E1	2.21 E1	
Manganese-54	1.5 E1	5.27	
Strontium-89	4.5	1.58	
Cesium-137	3.7	1.30	
Iodine-133	2.1	7.37 E-1	
c.			
d.			

3. Solid Waste Disposition Number of Shipments	Mode of Transportation	Destination
61	MOTOR VEHICLE	BARNWELL, SOUTH CAROLINA
8	MOTOR VEHICLE	RICHLAND, WASHINGTON

B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
NONE		