JCP&L / GPU

Jersey Central Power & Light Company
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960
(201) 455-8200

EAML-80-293
June 10, 1980

Mr. Darryll G. Eisenhut
Acting Director
Division of Operating Reactors
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
NUREG 0578 Implementation

Our letter of April 10, 1980 indicated that further information concerning implementation of NUREG 0578 would be provided prior to startup from our current outage.

Enclosure 1 provides a brief description of the planned modifications to improve the reliability of containment penetrations for the nitrogen purge and vent systems, as required by item 2.1.5.a.

Enclosure 2 provides the results of the release pathways design review, as required by item 2.1.6.a.

Enclosure 3 provides further information concerning the Plant Shielding review, as required by item 2.1.6.b.

It is our intention to submit the results of the Leakage Reduction Program, item 2.1.6.a, within two weeks of startup from the current outage. The program itself, however, will be complete prior to startup.

JCP&L has or will have completed by startup all the NUREG 0578 category A items in accordance with your Confirmatory Order of January 2, 1980. It is our intention to commence a plant startup on or about June 13, 1980.

If additional clarification is needed please contact Mr. E. O'Connor of my staff at 201-455-8749.

Very truly yours,

Ivan R. Finfrock, Jr.
Vice President

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Enclosures

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ENCLOSURE 1

June 10, 1980

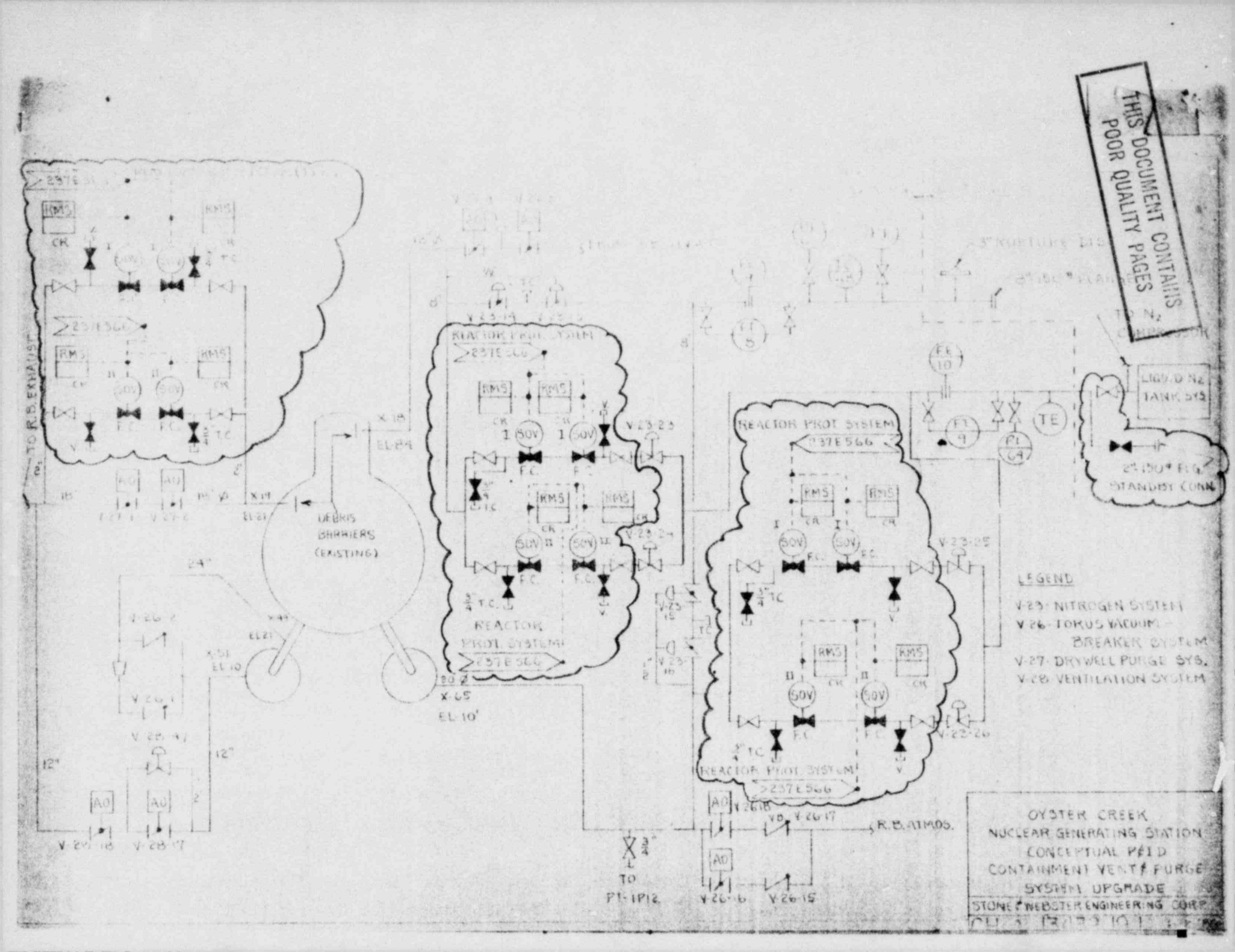
UPGRADE OF CONTAINMENT VENT AND NITROGEN PURGE SYSTEMS

Oyster Creek uses its normal containment vent and nitrogen purge systems for post-accident venting and purging of the containment atmosphere. Since the containment penetration isolation valves are not single failure proof for the operation of these systems, JCP&L is proposing modifications to the systems as shown in the attached sketch (S&W 13432-19-1). There are three primary modifications proposed which include single failure proof valve manifolds for 1) containment vent line from drywell, 2) nitrogen purge line to drywell and 3) nitrogen purge line to torus. A secondary modification is being included to provide a flanged connection outside the reactor building, so that a portable supply of nitrogen may be connected in the event of a loss of the nitrogen tank.

Venting of the torus will be accomplished by using the drywell vent line via the torus to drywell vacuum breakers.

Each of the solenoid-operated valves (SOV) will be remotely operated manually from the control room. These new valves (SOV's) will isolate automatically on a containment isolation signal. Venting and purging will be manually initiated, as required, by controlled bypassing of the isolation signals. Each valve manifold will have two (2) independent power supplies. This is indicated by Division I and Division II on the sketch.

The manual valves shown are added to provide leak rate testing capability in accordance with 10 CFR 50, Appendix J.



ENCLOSURE 2
June 10, 1980

JERSEY CENTRAL POWER & LIGHT COMPANY

Report to the Nuclear Regulatory Commission

In Response to

NUREG 0578, 2.1.6a
(IE Circular No. 79-21)

Oyster Creek Nuclear Generating Station

Prevention of Unplanned Release of Radioactivity Investigation

June 2, 1980

I. INTRODUCTION

IE Circular No. 79-21 identifies preventive measures which can be undertaken to minimize the occurrence of unplanned releases of radioactivity to the environment. The program, as defined herein, was intended to augment the Oyster Creek Nuclear Generating Station "Leak Reduction Program" as described in Jersey Central Power & Light Company report to the NRC in response to NUREG-0578, Section 2.1.6.a. The NUREG-0578 leak reduction program provides more positive control and knowledge of those systems outside the primary containment that will or may have to function during a serious transient or accident with large radioactive inventories in the fluids they possess. As this program, system components and cross ties to other systems are closely examined and/or tested to provide a high degree of confidence that radioactive fluids contained in these systems do not leak to the plant internal environs or other systems.

The Oyster Creek IE Circular 79-21, "Prevention of Unplanned Releases of Radioactivity Investigation", identified and examined flow paths by which radioactivity can leave the plant internal environs to the outside environment. As part of this program, the flow paths to the outside environment was reviewed with the objective of minimizing the potential of unplanned radioactivity releases. Depending upon flow path, this review encompassed the adequacy of operating procedures controlling the transfer of radioactive fluids, physical controls (i.e., locked valves, capped pipes, curbing), and new system design reviews.

II. PROGRAM SCOPE

Consideration was given to including all possible flow paths which penetrate the plant internal environs to the outside environs for inclusion in the Prevention of Unplanned Release of Radioactivity Investigation. It was decided that because the Oyster Creek Nuclear Generating Station is a mature plant having been in commercial operation for ten years, it was assumed that design errors, procedural inadequacies, and physical protection measures have been identified and corrected for the systems and components contained in the reactor and turbine buildings. Therefore, systems and components which have been in service since initial commercial operation and have proven not to be a source of unplanned releases are excluded from the scope of this program. New systems and recent modifications to original systems have been examined as part of this program. Jersey Central Power & Light Company has recently installed two major modifications to the plant--a new liquid radwaste system and a new off-gas system. Both of these systems have been closely examined for the potential of unplanned radioactivity release path to the environment. A listing of the flow paths to the outside environment examined, procedures reviewed, and systems which received a design review with the objective of minimizing unplanned radioactive releases are provided below:

A. Flow Paths to Outside Environment

Radioactive Fluid Flow Paths have been reviewed with the objective of minimizing the potential of unplanned releases to the outside environment. The flow paths to be evaluated as part of this investigation are listed below:

1. Reactor Building doors and railroad lock

2. Turbine Building doors

3. Radwaste Building doors

4. Offgas Building doors

5. Liquid discharge flow paths from the Radwaste Building to the discharge canal

6. Storm drain system for Reactor, Turbine, Radwaste, and Offgas Buildings and outside storage tank leakage containments

7. Process piping to outside storage tanks

8. Process piping from plant buildings to Radwaste

9. Building sumps which have the capability to discharge directly to environs

In reviewing the building doors, considerations were given to the proximity to radioactive areas, piping, and equipment location that if leaked could result in a flow of radioactive fluids and material to the outside environment. The door construction, its type, seal, threshold, and condition were taken into consideration as part of this investigation. Finally, all building floor layouts were inspected for methods of containing spills and leaks within their immediate locality as part of good housekeeping and for contamination control to minimize the potential of tracking contamination to the outside environment.

B. Procedure Review

A review was performed on plant operating procedures for those systems which process radioactive gaseous, liquid, and solid materials. Each procedure was reviewed for accuracy, clarity, technical content, and administrative controls as relates to minimizing the potential for

unplanned radioactivity releases. The following operating procedures were included in this review:

Procedure No.	Title
303	Reactor Cleanup Demineralizer System
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313.3	Chemical Subsystems
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314	Radioactive Solid Waste System
319	Condensate Demineralizer & Resin Regeneration & Transfer System
325	Air Extraction and Offgas System
330	Standby Gas Treatment System
332	Radwaste Building Heating and Ventilation System
332.1	Radwaste Building HVAC System
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351.11	Packaging Radioactive Waste for Shipment to Offsite Burial Site in Hitman HN 100 Series L Cask
351.12	Process Waste Lines Drainage Verification

C. System Design Review

A design review to identify flow paths that could result in unplanned radioactivity releases to the environment was performed on the following systems:

New Radwaste Systems

1. Generic Review Results
2. Solid System
3. High Purity Waste System
4. Chemical Waste/Floor Drain System
5. Control and Service Air System
6. Closed Cooling and Service Water Systems
7. Miscellaneous Subsystems

   Caustic and Acid Transfer System

   Demineralized Water Transfer System

   Condensate Transfer

   Hot Water Flush System
8. Radwaste Building HVAC

Augmented Offgas Systems

1. Offgas System
2. Offgas Building HVAC
3. Offgas Building Closed Cooling Water System
4. Offgas Building Service Water System

The various process flow paths for the above systems were examined for possible sources of system fluid out leakages. Flow paths; such as, safety relief valves, system vents and drains, equipment drains, tank overflows, instrumentation sensing lines, and sample stations, were checked to determine if they could be a possible source of unplanned radioactivity release. To the extent possible, each system process flow path was checked against the system process flow diagram to verify that the as-built condition agreed with the process flow diagram.

This design review and system walkdown focused only on potential leakage paths which could result in unplanned releases of radioactivity to the plant outside environment. It did not address adequacy of system design, system controls, performance, and other system technical parameters. In addition to the review, station operators were questioned and asked to identify potential unplanned radioactivity leakage paths for inclusion within this investigation report.

III. RESULTS

The results of this review were very favorable and only minor corrections are in order. In general, these include repairs to door seals and improvements to specific procedures and administrative controls. These items will be corrected in the near future.

A copy of the Consulting Engineer's detailed report dated May 23, 1980 is available at Oyster Creek if additional review is required.

2.1.6.b Plant Shielding Review

The following represents three areas of the plant shielding review that JCP&L committed further information would be provided.

1. The assessment of the qualifications of safety related equipment for exposure to post accident radiation doses is continuing. Based on the information obtained to date there is no evidence to show any safety related equipment will fail from post accident radiation exposure.

Our Systematic Evaluation Program (SEP) submittal of May 7, 1980 to Mr. Dennis Mr. Crutchfield, of the division of Operating Reactors details environmental qualifications of electrical equipment at Oyster Creek. Post accident radiation exposure, consistent with NUREG 0578 assumptions, is among the qualification conditions included. The environmental qualifications of electrical equipment is scheduled for September, 1980 completion and will represent our NUREG 0578, section 2.1.6.b, response for radiation qualification of safety related electrical equipment.

The qualification of safety related mechanical equipment for post accident radiation exposures will be submitted as a separate report concurrent with our SEP submittal in September, 1980. The complimentary electrical and mechanical sections will comprise our detailed component assessment of safety related equipment which could be exposed to post-accident radiation doses.

2. Based on our review of areas which could require access during recovery operations, the vital areas identified in our letter of April 10, 1980 constitute a final and complete listing. The remote location and existing shielding of the diesel generators, the Technical Support Center, and the radiological/chemical analysis facilities from the reactor building ensures that access would be available during post accident conditions. Access to the radwaste panels would not be required for recovery from the accident. It has been decided that the existing facilities would not be used to process the resulting contaminated fluids following an accident. Motor control centers and instrument racks in areas where the dose rate may be prohibitively high for event infrequent access have been evaluated and a determination has been made that access would not be required for recovery from an accident. In the submittal of April 10, 1980 the proposed corrective actions for two identified functions were not addressed. The two functions and their respective proposed corrective action are as follows:

Preventative Maintenance:

Weekly inspections are presently conducted on oil lubricated pumps located in the reactor building to insure that required oil levels are maintained. Oil lubricated pumps that may be called upon to operate for an extended period of time during post-accident conditions include the Reactor Building closed Cooling Water pumps, Shutdown Cooling pumps, Core Spray and Core Spray booster pumps, and the Cleanup Demineralizer pumps. The dose rate may be prohibitively high for even infrequent access to these pumps.

The recommended corrective action is to ensure that the oil reservoirs are of

sufficient capacity to provide for long term operation of these pumps.

Standby Gas Treatment System

The filters for the Standby Gas Treatment system may require changing under post-accident conditions. The dose rate may be prohibitively high for infrequent access.

The recommended corrective action is to provide additional connections to which an alternate train of filters can be installed if needed.

3. All personnel/equipment hatches into the reactor building have been evaluated for their impact on post-accident operations. The personnel airlock on elevation 51'3" of the reactor building is the only hatch that appears unsatisfactory. The airlock provides a line of sight from the core spray booster pumps and piping through the office building to a control room entrance. The existing shielding along this line of sight may not maintain the dose rate low enough for continuous occupancy. The proposed corrective action for this is to provide supplemental shielding in order to effectively reduce the dose rate in the affected portion of the control room to continuous occupancy levels.

JCP&L / GPU

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EAML-80-293
June 10, 1980

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It is our intention to submit the results of the Leakage Reduction Program, item 2.1.6.a, within two weeks of startup from the current outage. The program itself, however, will be complete prior to startup.

JCP&L has or will have completed by startup all the NUREG 0578 category A items in accordance with your Confirmatory Order of January 2, 1980. It is our intention to commence a plant startup on or about June 13, 1980.

If additional clarification is needed please contact Mr. E. O'Connor of my staff at 201-455-8749.

Very truly yours,

Ivan R. Finfrock, Jr.
Vice President

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Enclosures

ENCLOSURE 1

June 10, 1980

UPGRADE OF CONTAINMENT VENT AND NITROGEN PURGE SYSTEMS

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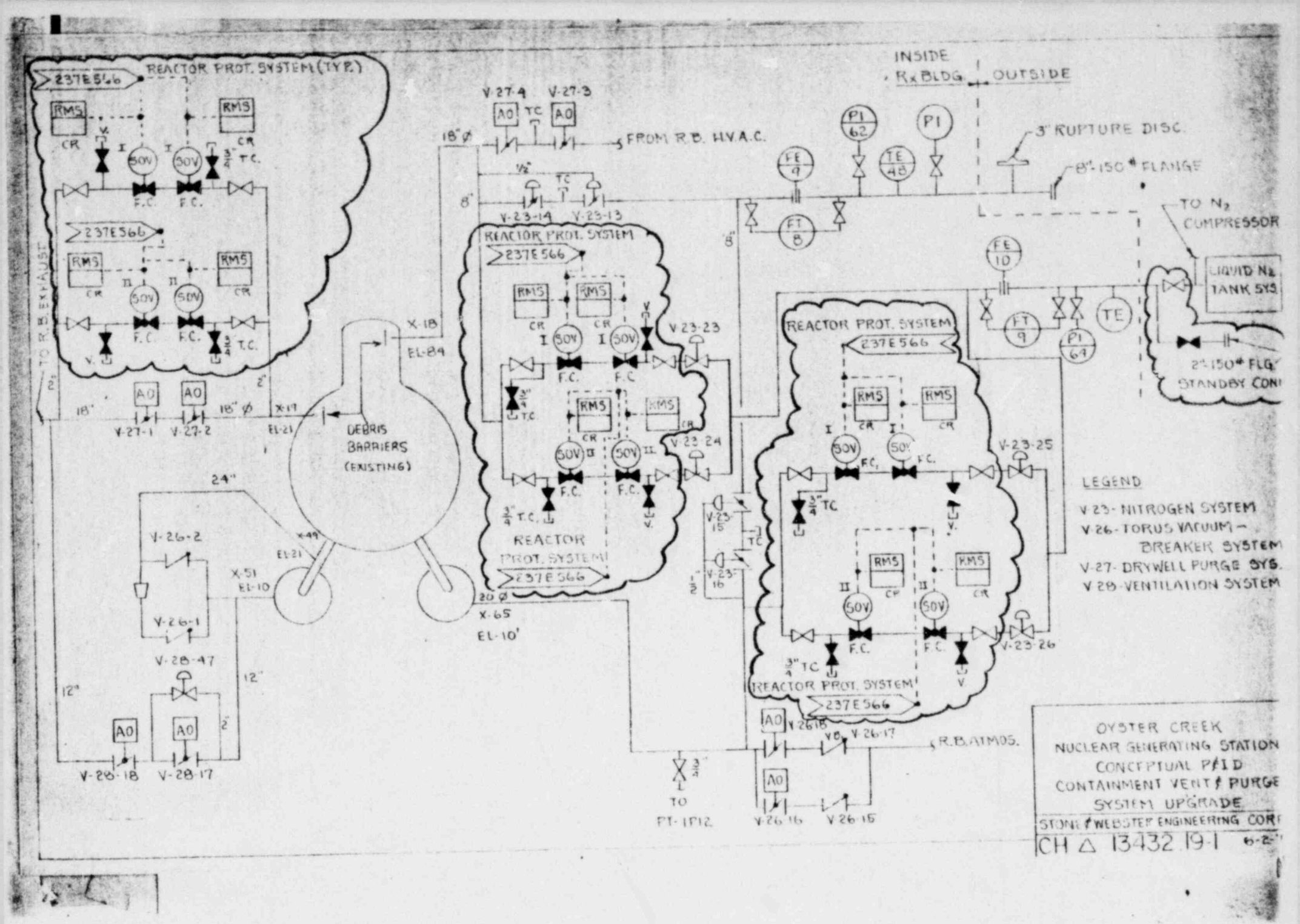
Venting of the torus will be accomplished by using the drywell vent line via the torus to drywell vacuum breakers.

Each of the solenoid-operated valves (SOV) will be remotely operated manually from the control room. These new valves (SOV's) will isolate automatically on a containment isolation signal. Venting and purging will be manually initiated, as required, by controlled bypassing of the isolation signals. Each valve manifold will have two (2) independent power supplies. This is indicated by Division I and Division II on the sketch.

The manual valves shown are added to provide leak rate testing capability in accordance with 10 CFR 50, Appendix J.


REACTOR PROT. SYSTEM (TYP.)
237E566
RMS
CR
SOV
F.C.
T.C.
INSIDE
Rx BLDG
OUTSIDE
V-27-4
V-27-3
AO
TC
FROM R.B. H.V.A.C.
18"ø
8"
3" RUPTURE DISC.
8"-150# FLANGE
TO N2 COMPRESSOR
LIQUID N2 TANK SYS.
2"-150# FLG. STANDBY CONN.
FE 10
FT 9
PI 64
TE
PI 62
FE 9
TE 48
FT 8
PI
V-23-14
V-23-13
V-23-23
V-23-24
V-23-25
V-23-26
V-23-15
V-23-16
X-18
EL-89
X-17
EL-21
DEBRIS BARRIERS (EXISTING)
V-27-1
V-27-2
X-49
X-51
EL-10
X-65
EL-10'
V-26-2
V-26-1
V-28-47
V-28-18
V-28-17
V-26-18
V-26-17
V-26-16
V-26-15
R.B. ATMOS.
TO PT-1712
TO R.B. EXHAUST
LEGEND
V 23- NITROGEN SYSTEM
V 26- TORUS VACUUM - BREAKER SYSTEM
V-27- DRYWELL PURGE SYS.
V 28- VENTILATION SYSTEM
OYSTER CREEK
NUCLEAR GENERATING STATION
CONCEPTUAL P&I D
CONTAINMENT VENT & PURGE
SYSTEM UPGRADE
STONE & WEBSTER ENGINEERING CORP.
CH △ 13432 19-1

ENCLOSURE 2
June 10, 1980

JERSEY CENTRAL POWER & LIGHT COMPANY

Report to the Nuclear Regulatory Commission
In Response to
NUREG 0578, 2.1.6a
(IE Circular No. 79-21)

Oyster Creek Nuclear Generating Station
Prevention of Unplanned Release of Radioactivity Investigation

June 2, 1980

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The filters for the Standby Gas Treatment system may require changing under post-accident conditions. The dose rate may be prohibitively high for infrequent access.

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