

SAXTON NUCLEARSaxton Nuclear Experimental Corporation
Policy and Procedure Manual

Number

6575-SUR-4523.01

Title

Revision No.

Quarterly Facility Inspection Procedure**1**

Applicability/Scope:

Responsible Office

Effective Date

Saxton Tech. Spec. quarterly inspections

6575

12/14/93

This document is within QA plan scope

☒

Yes

☐ No

Safety Reviews Required

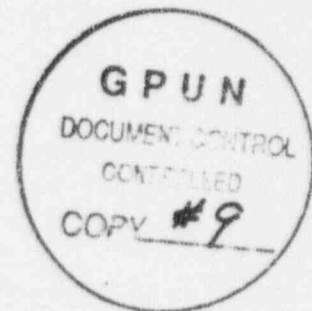
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Yes

☐ No

List of Effective Pages

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	Signature	Date
SNEC Radiation Safety Officer	<i>[Signature]</i>	12-2-93
SNEC Assistant	<i>[Signature]</i>	12/2/93
Saxton General Manager/VP, SNEC	<i>[Signature]</i>	12/3/93

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1.0 PURPOSE

To ensure that the Saxton facility is in a status that will not endanger the health and safety of the public, and that the facility is maintained in compliance with its Technical Specifications.

2.0 APPLICABILITY/SCOPE

This procedure is applicable to all Tech. Spec. quarterly inspections performed at the Saxton Nuclear Experimental Corporation (SNEC) facility.

DEFINITIONS

None

4.0 PROCEDURE

4.1 Discussion

- 4.1.1 At least two (2) people, one of whom will be a qualified Radiological Controls Technician, will make the inspection.
- 4.1.2 The inspections will be made in accordance with this procedure and Ref. 6.7
- 4.1.3 If any of the locks, doors, or gates inspected are found open, or appear to be tampered, Ref. 6.3 shall be implemented as appropriate.

4.2 Apparatus

- 4.2.1 Set of keys to open all SNEC locks.
- 4.2.2 Flashlight
- 4.2.3 Calibrated portable survey meters for fixed point Containment Vessel radiation measurements and Exclusion Area fence survey.
- 4.2.4 Sample bottles.

4.3 Performance

NOTE

The order of performing the inspection steps will be at the discretion of personnel performing the inspection.

- 4.3.1 The SNEC General Manager or RSO will designate personnel to conduct this surveillance.
- 4.3.2 All inspection sheets will be submitted to the SNEC RSO for review. Upon RSO review, all Inspection Sheets will be forwarded to the Saxton General Manager for final review and filing.

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- 4.4 Perform facilities check as outlined in Exhibit 1, Part 1.
- 4.4.1 Send containment sump and CV pipe tunnel water samples for appropriate analysis. Water samples are required to be analyzed for gross beta gamma activity and for the isotopic concentration of all significant radionuclides.
- 4.4.2 The use of the TMI Chemistry results are for quality control purposes only. A split QA sample for TMI Chemistry will be taken of CV sump water. Regulatory reporting of results from TMI Chemistry can only be used if: 1) other sources of analysis are not available, and 2) the results must as a minimum have an LLD consistent with 10 CFR 20, Appendix B, Table 2, Column II concentrations, 3) and/or approval of the SNEC General Manager.

4.5 Performance of the Quarterly Containment Vessel Survey

This survey is intended to trend the migration of the contamination within the containment structure, to verify dose rates, to sample the CV sump if possible and change out the high efficiency filter on the containment vessel breather tube.

NOTE

The breather tube allows for an exchange of air between the outside air and the containment environment. The high efficiency filter is in place to filter particulate matter.

- 4.5.1 Before opening the CV outer door call the Dispatch at (814) 535-5465. State your name and inform them you are about to make a Containment Vessel entry.
- 4.5.2 The twenty fixed point locations (see Exhibit 2) serve as the location for general area beta-gamma dose rates and contamination survey points. These locations are also posted inside containment. At each location a general area beta-gamma dose rate and smear sample are to be taken. The RO-2 is the preferred instrument for dose rate measurements.
- In addition to the fixed point locations, random dose rates and smears should be taken. Five to ten random locations are suggested. Radiation and contamination surveys to be done in accordance with Ref. 6.4 and Ref. 6.5. Exhibit 1, Part 2 shall also be filled out for the fixed point survey results.
- 4.5.3 The breather tube filter shall be changed out and surveyed quarterly. Contact the SNEC RSO to ensure the availability of replacement filters.
- 4.5.3.1 To replace the filter, loosen the wing nuts and remove the retaining plate.
- 4.5.3.2 Remove the used filter.
- 4.5.3.3 Bag the used filter and visually inspect the breather tube port for any obstructions.
- 4.5.3.4 Install the new filter, replace the retaining plate and tighten the wing nuts.

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4.5.3.5 Remove filter to low background area and survey for unrestricted release. When filter is released for unrestricted use it is to be forwarded to a laboratory for gamma spectroscopy. Contact SNEC RSC for help in notifying applicable lab and/or initiating sample collection sheets. Filter gamma spec results are to be maintained with Exhibit 1 for each quarterly survey.

4.5.4 Checking the CV Sump Level and Taking the Sample

4.5.4.1 Proceed to the 812' elevation of the Containment Vessel (See Map, Exhibit 2). Unlock and open grating. Note you are entering a posted, locked, high rad and step-off pad area. Proceed down the stairs to the basement level, go around the shield wall. The CV sump is near the Rod Room door. Verify the Rod Room door is locked and document on Exhibit 1.

NOTE

Exhibit 3 shows a cross section of the Containment Vessel and the sump location.

4.5.4.2 Measure the water level of the sump. Document water level on the appropriate line on Exhibit 1.

4.5.4.3 Use the hand pump provided to pull two, 500 ml samples. Rinse each sample bottle and cap with the sump water prior to taking the sample. The required sample amount can vary so contact the SNEC RSO for the necessary sample volume.

NOTE

The sump sample activity typically requires that the TMI Waste Disposal Group package and ship the sample to the applicable labs for analysis. Contact the Waste Disposal Group to arrange support.

4.5.4.4 Take appropriate measures to ensure the sample(s) are less than 1000 dpm/100 cm² for smearable, external beta-gamma contamination for removal from the Containment Vessel. If the Waste Disposal Group representative is present, turn the sample(s) over to him/her for processing. If the individual is not present the samples are to be staged where appropriate and posted per the requirements of Ref. 6.6 until the samples can be packaged and shipped.

4.5.5 A general area radiation and contamination survey should be documented to support the entry into the lower elevations per References 6.4 and 6.5.

4.5.6 Secure all locks, doors and gates and notify Dispatch again when the outer CV door is secured.

4.5.7 Ensure Exhibit 1 is completed and forward all survey results to the SNEC RSO for review.

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4.6 Fence Survey

- 4.6.1 A radiation survey shall be performed around the outside of the SNEC site fence, the Containment Vessel (exclusion area) fence, common SNEC/Penelec fence(s), and the Penelec outer fence which describes the limits of the SNEC /Penelec line shack property. The survey shall consist of general area dose rates. As a minimum, an instrument with $\mu\text{Rem/hr}$ sensitivity shall be used for this survey. Highest general area dose rates are to be filled in on Exhibit 1, Part 2. Readings should be recorded on Exhibits 4 and 5 or equivalent forms, as appropriate.

5.0 RESPONSIBILITIES

Inspections shall be conducted no less than once per calendar quarter. The Saxton General Manager or designee is responsible for ensuring that the quarterly inspections are conducted according to this procedure. Technical Specification violations shall be reported to the SNEC Licensing engineer or his/her designee, who is responsible for notifying the NRC in accordance with Technical Specification Section B.5.a.

6.0 REFERENCES

- 6.1 SNEC Technical Specifications
- 6.2 6575-PLN-4542.01, "SNEC Radiation Protection Plan"
- 6.3 6575-ADM-4500.06, "Emergency Response Procedure and Emergency Plan"
- 6.4 6575-ADM-4500.11, "Radiation Surveys"
- 6.5 6575-ADM-4500.10, "Surface Contamination Surveys"
- 6.6 6575-ADM-4500.14, "Establishing and Posting Areas"
- 6.7 6575-ADM-4500.24, "Initial Containment Vessel Entry"
- 6.8 6575-ADM-4500.22, "Environmental Monitoring"

7.0 ATTACHMENTS

- 7.1 Exhibit 1 - SNEC Inspection Sheet
- 7.2 Exhibit 2 - Permanent Survey Points SNEC Reactor Containment Bldg. Map
- 7.3 Exhibit 3 - Containment Vessel Cross-Sectional View
- 7.4 Exhibit 4 - SNEC Site and Exclusion Area Fence Map
- 7.5 Exhibit 5 - PENELEC Perimeter

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EXHIBIT 1

CNEC Inspection Sheet

Part 1
(Facilities Check List)

Page 1 of 3

Date: _____

Name of individual(s) Performing Checklist (Print/Sign) _____

Initials: _____

1. Call the Dispatch to inform them of impending Containment Building entry (814-535-5465). _____
2. Confined space permit generated for CV entry. _____
3. CV fenced area gates are in satisfactory condition and locked. _____
4. External Containment Building in satisfactory condition. _____
5. Containment area fence in satisfactory condition and properly posted (as per RSO). _____
6. Breather pipe is not clogged by visual inspection and the filter is changed out. _____
7. Emergency personnel hatch sealed. _____
8. Equipment hatch sealed. _____
9. Rad Material sign on the Containment Building door is in satisfactory condition. Vessel door is in satisfactory condition and double locked. _____
10. Locked High Rad stairwell grating is in satisfactory condition; locked, properly posted, and lock is in satisfactory condition. _____
11. Inspect auxiliary compartment to see that no water is present and that its condition is satisfactory. _____
12. Check the containment sump for water. Measure and record the water level (if appropriate), sample and attach results (when received from analytical lab). _____

_____ CV Sump Water Level

13. Rod room door is in satisfactory condition and is locked. _____
14. Remove all inspection equipment from Levels below 812'. _____
15. Lock the stairwell gate. _____
16. Remove all inspection equipment from Levels 812' and 818'. _____
17. Turn off all electrical breakers. _____
18. Close and lock CV outer door. _____
19. Ensure that the CV Pipe Tunnel hatches are in satisfactory condition. _____
20. Open the East CV Pipe Tunnel hatch, measure and record the water level (if appropriate), sample and send for analysis. Close hatch. Note: Attach analysis results when received from analytical lab. _____

_____ CV Pipe Tunnel Water Level

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EXHIBIT 1 (Cont'd)

SNEC Inspection Sheet

Part 1 (Cont'd)
(Facilities Check List)

Page 2 of 3

Initials

21. Close and lock CV fenced area gates.
22. Check condition of exclusive area locks, vehicle gates and/or intrusion barriers.
23. Inspect exclusion area fence and ensure proper posting as per RSO.
24. Call the Dispatch and ensure that the intrusion alarm was received and has been reset (814-535-5465).
25. Relock all doors and security gates upon leaving if not already accomplished.

Reviewed By: _____
(Signature)
Saxton Radiation Safety Officer (Date)

Reviewed By: _____
(Signature)
Saxton General Manager (Date)

Quarterly Facility Inspection Procedure**1****EXHIBIT 1 (Cont'd)****SNEC Inspection Sheet**Part 2
(Radiological Controls Check List)Page 3 of 3

Date: _____

1. Survey general area inside Containment Bldg.

Signature

2. Survey the 20 permanently marked survey points.

Signature

1 _____ mRem/hr

6 _____ mRem/hr

11 _____ mRem/hr

16 _____ mRem/hr

2 _____ mRem/hr

7 _____ mRem/hr

12 _____ mRem/hr

17 _____ mRem/hr

3 _____ mRem/hr

8 _____ mRem/hr

13 _____ mRem/hr

18 _____ mRem/hr

4 _____ mRem/hr

9 _____ mRem/hr

14 _____ mRem/hr

19 _____ mRem/hr

5 _____ mRem/hr

10 _____ mRem/hr

15 _____ mRem/hr

20 _____ mRem/hr

3. Provide radiation survey instrument
-
- information below:

Signature

Instrument type: _____

Serial Number: _____

Calibration Due Date: _____

4. Smear 20 permanently marked survey points.
-
- (attach copy of completed survey form)

Signature1 _____ dpm/100cm²6 _____ dpm/100cm²11 _____ dpm/100cm²16 _____ dpm/100cm²2 _____ dpm/100cm²7 _____ dpm/100cm²12 _____ dpm/100cm²17 _____ dpm/100cm²3 _____ dpm/100cm²8 _____ dpm/100cm²13 _____ dpm/100cm²18 _____ dpm/100cm²4 _____ dpm/100cm²9 _____ dpm/100cm²14 _____ dpm/100cm²19 _____ dpm/100cm²5 _____ dpm/100cm²10 _____ dpm/100cm²15 _____ dpm/100cm²20 _____ dpm/100cm²

5. Perform the fence radiological survey.

Signature

Provide radiation survey instrument information below:

Instrument type: _____

Serial Number: _____

Calibration Due Date: _____

Show the highest dose rates:

SNEC EA: _____
μRem/hrSNEC CV: _____
μRem/hrPenelec Yard: _____
μRem/hr

Reviewed by SNEC RSO: _____

(Signature)

Saxton Radiation Safety Officer

Date

Reviewed by Saxton General Manager: _____

(Signature)

Saxton General Manager

Date

EXHIBIT 2

20 Permanent Survey Points Map Containment Vessel 818' and 612' Elevation

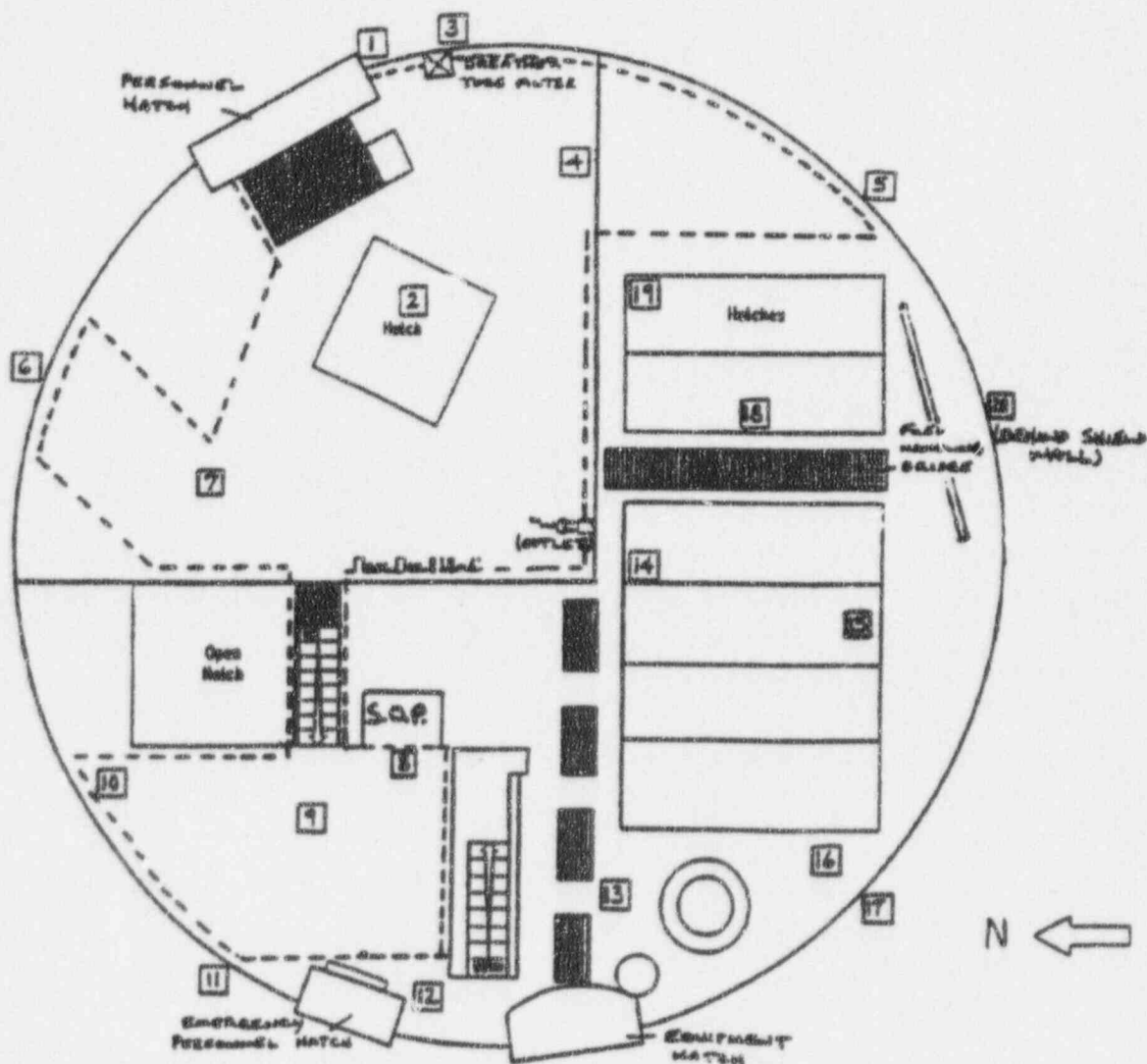


EXHIBIT 3

Containment Vessel Cross-Sectional View

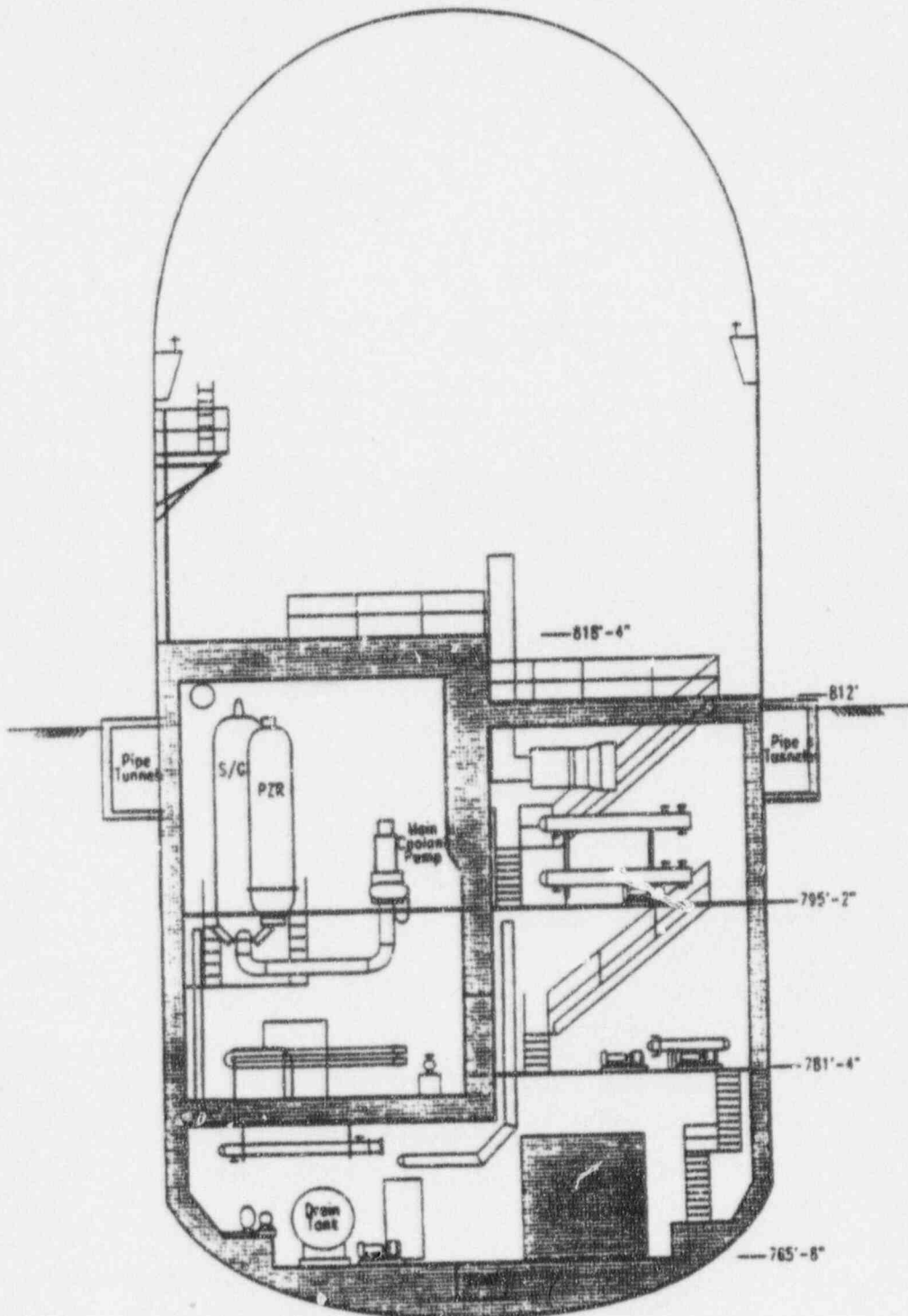
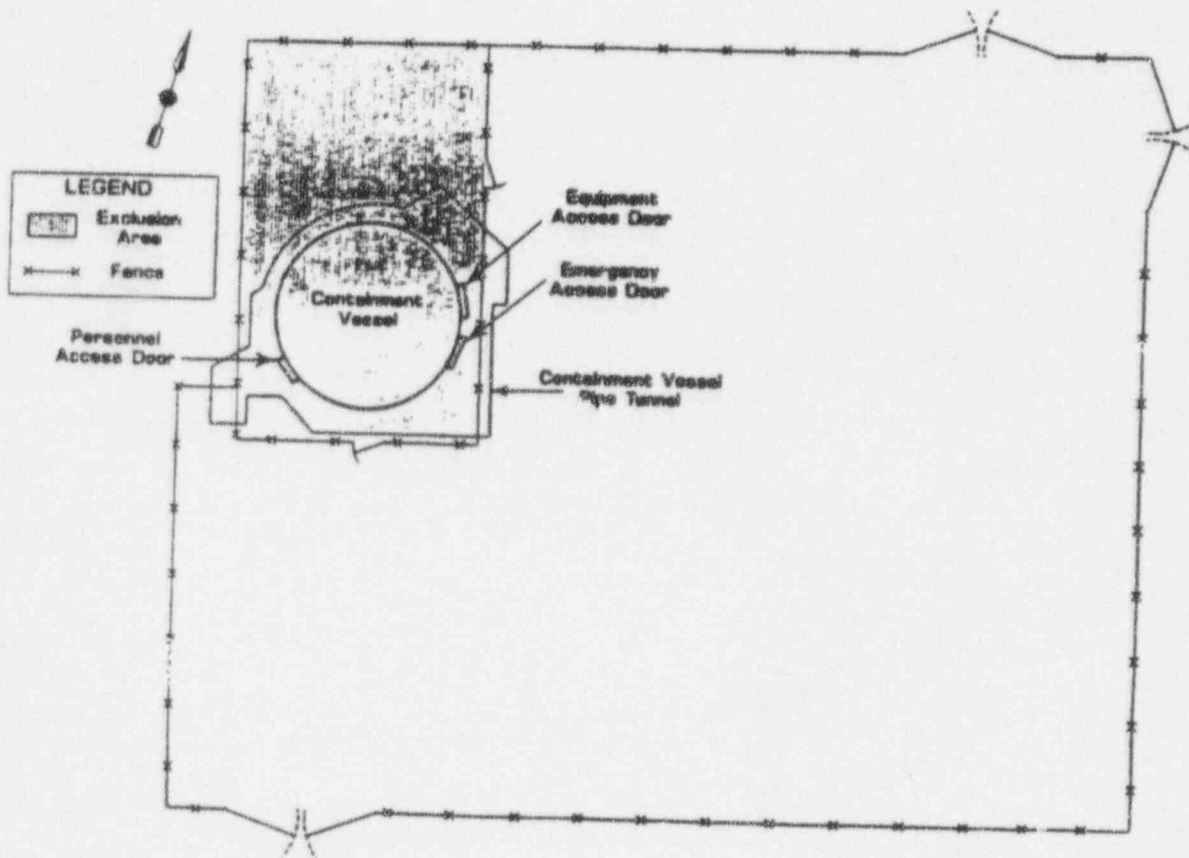


EXHIBIT 4

SNEC Exclusion Area Map

SURVEY INFORMATION		RADIATION SURVEY	
Location _____		Inst _____	Inst _____
_____		S.N. _____	S.N. _____
Reason _____		Cal.Due _____	Cal.Due _____
_____		B.C.F. _____	B.C.F. _____
Date _____	Time _____	Tech _____	
Tech _____		Notes: Radiation in mRem/hr unless otherwise noted. Dose rates are general area unless otherwise noted.	
Reviewed By _____			



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EXHIBIT 5

PENELEC Perimeter

SURVEY INFORMATION	RADIATION SURVEY	
Location _____	Inst _____	Inst _____
_____	S.N. _____	S.N. _____
Reason _____	Cal.Due _____	Cal.Due _____
_____	B.C.F. _____	B.C.F. _____
Date _____ Time _____	Tech _____	
Tech _____	Notes: Radiation in mRem/hr unless otherwise noted. Dose rates are general area unless otherwise noted.	
Power Level _____		
Reviewed By _____		

