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PARRISH,J.V. Washington Public Power Supply System

SUBJECT: Informs that NRC insp rept 50-397/98-99 initiated for SALP canceled since SALP process suspended for two yrs.

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Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Washington Public Power Supply System
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT 50-397/98-99

Dear Mr. Edington:

NRC Inspection Report 50-397/98-99 was the report number initiated for the Washington Nuclear Project-2 Systematic Assessment of Licensee Performance (SALP). Since the SALP process has been suspended for 2 years, this report has been canceled; therefore, no inspection report will be issued for this number.

Sincerely,

G. A. Pick, Acting Chief
Project Branch E
Division of Reactor Projects

Docket No.: 50-397
License No.: NPF-21

cc:
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Energy Facility Site Evaluation Council
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Olympia, Washington 98504-3172

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Perry D. Robinson, Esq.
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Subject:
NOTIFICATION OF AN NRC TRIENNIAL FIRE PROTECTION BASELINE INSPECTION 50-3
97/00-07

Body:

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

JAN 31 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NOTIFICATION OF AN NRC TRIENNIAL FIRE PROTECTION BASELINE INSPECTION 50-397/00-07

Dear Mr. Parrish:

The purpose of this letter is to notify you that the U.S. Nuclear Regulatory Commission (NRC) Region IV staff will conduct a triennial fire protection baseline inspection at the Washington Nuclear Project-2 facility in May 2000. The inspection team will be led by, a senior reactor inspector from the NRC Region IV Office, and will be staffed with contracted personnel from the Sandia National Laboratory. In addition, three observers will be present during the inspection. The inspection will be conducted in accordance with Inspection Procedure 71111.05, "Fire Protection," the NRC's baseline fire protection inspection procedure.

To aid in our preparation for this inspection, we request that your plant's post-fire safe shutdown analysis and plant layout drawings (identifying the physical plant locations of hot standby and cold shutdown equipment) be provided to the lead inspector, Claude E. Johnson, for examination in our regional office. This information should arrive in the NRC's Region IV Office in Arlington, Texas, no later than March 27, 2000.

The schedule for the inspection is as follows:

- Information gathering visit - April 17-19, 2000
- Week of onsite inspection - May 1-5, 2000

In advance of the onsite week of inspection, members of the inspection team will visit the Washington Nuclear Project-2 facility on April 17-19, 2000, to obtain information and documentation needed to support the inspection, to become familiar with the fire protection programs, fire protection features, post-fire safe shutdown capabilities and plant layout and, as necessary, obtain plant-specific site access training and badging for unescorted site access. A nonexhaustive list of the types of documents the team will be interested in reviewing, and possibly obtaining, are listed in the Enclosure.

During the information gathering visit, the team will conclude discussions on the following inspection support administrative details: office space, size and location; specific documents requested to be made available to the team in their office spaces; arrangements for site access (including radiation protection training, security, safety, and fitness-for-duty requirements); and the availability of knowledgeable plant engineering and licensing organizational personnel to serve as points of contact during the inspection.

We request that, during the onsite inspection week, you ensure that copies of analyses, evaluations or documentation regarding the implementation and maintenance of the fire protection program, including post-fire safe shutdown capability, be readily accessible to the team for their review. Of specific interest are those documents that establish that your fire protection program satisfies NRC regulatory requirements and conforms to applicable NRC and industry fire protection guidance. Also, appropriate personnel knowledgeable of: (1) those plant systems required to achieve and maintain safe shutdown conditions from inside and outside the control room; (2) the electrical aspects of the post-fire safe shutdown analyses; (3) reactor plant fire protection systems; and (4) the fire protection program and its implementation, should be available at the site during the inspection.

Your cooperation and support during this inspection will be appreciated. If you have questions concerning this inspection, or the inspection team's information or logistical needs, please contact me at 817/860-8195 or Claude E. Johnson at 817/860-8282.

Sincerely,

Dale A. Powers

Dr. Dale A. Powers, Chief
Engineering and Maintenance Branch
Division of Reactor Safety

Enclosure: As stated

Docket No.: 50-397
License No.: NPF-21

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* See prior concurrence.

003680758

ENCLOSURE

Reactor Fire Protection Program Supporting Documentation

1. The current version of the fire protection program and fire hazards analysis.

2. Current versions of the fire protection program implementing procedures (e.g., administrative controls, surveillance testing, fire brigade).

3. Fire brigade training program and pre-fire plans.

4. Post-fire alternative shutdown analysis.

5. Piping and instrumentation (flow) diagrams highlighting the components used to achieve and maintain hot standby and cold shutdown for fires outside the control room and those components used for those areas requiring alternative shutdown capability.

6. Plant layout and equipment drawings that identify the physical plant locations of hot standby and cold shutdown equipment.

7. Plant layout drawings that identify plant fire area delineation, areas protected by automatic fire suppression and detection, and the locations of fire protection equipment.

8. Plant layout drawings that identify the general location of the post-fire emergency lighting units.

9. Associated circuit analysis performed to assure the shutdown functions and alternative shutdown capabilities are not prevented by hot shorts, shorts to ground, or open circuits (e.g., analysis of associated circuits for spurious equipment operations, common enclosure, common bus).

10. Plant operating procedures that would be used and which describe shutdown from inside the control room with a postulated fire occurring in any plant area outside the control room, and procedures that would be used to implement alternative shutdown capability in the event of a fire in either the control or cable spreading room.

11. Maintenance and surveillance testing procedures for alternative shutdown capability and fire barriers, detectors, pumps, and suppression systems.

12. Maintenance procedures that routinely verify fuse breaker coordination in accordance with the post-fire safe shutdown coordination analysis.

13. A sample of significant fire protection and post-fire safe shutdown related design change packages (including their associated 10 CFR 50.59 evaluations) and Generic Letter 86-10 evaluations.

14. The plant's individual plant examination external event report, results of any post-individual plant examination external event reviews, and listings of actions taken or plant modifications conducted in response to individual plant examination external event information.

15. Temporary modification procedures.

16. Organization charts of site personnel down to the level of fire protection staff personnel.

17. If applicable, layout/arrangement drawings of potential reactor coolant/recirculation pump lube oil system leakage points and associated lube oil collection systems.

18. The 10 CFR 50.59 reviews, which form the licensing basis for the plant's post-fire safe shutdown configuration.

19. Procedures/instructions that control the configuration of the reactor plant's fire protection program, features, and post-fire safe shutdown methodology and system design.

20. A list of applicable codes and standards related to the design of plant fire protection features and evaluations of code deviations.

21. Procedures/instructions that govern the implementation of plant modifications, maintenance, and special operations, and their impact on fire protection.

22. The three most recent fire protection quality assurance audits and/or fire protection self-assessments.

23. Recent quality assurance surveillances of fire protection activities.

24. Listing of open and closed fire protection condition reports (problem reports, nonconformance reports, problem identification and resolution reports).

25. Listing of plant fire protection licensing basis documents.

26. National Fire Protection Association code versions committed to (codes of record).

27. Listing of plant deviations from code commitments.

28. Listing of Generic Letter 86-10 evaluations.

50-397
3/31/00
00-05

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MAR 31 2000

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest (Mail Drop 1023)
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT NO. 50-397/00-05

Dear Mr. Parrish:

This refers to the inspection conducted on February 28 through March 2, 2000, at the Washington Nuclear Project-2 facility. The purpose of this inspection was to evaluate the overall readiness and implementation of the WNP-2 emergency preparedness program. The enclosed report presents the results of this inspection. Followup discussions were held on March 20 and 29, 2000, between NRC Region IV and Messrs. P. Inserra, S. Boynton, T. Messersmith and staff to discuss the characterization of the audit frequency issue.

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred in that annual drills that tested the capability of onsite medical personnel were not performed. This violation is being treated as a noncited Violation (NCV), consistent with Section VII.B.1.a of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or severity level of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Washington Nuclear Project-2 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, if requested, will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Gail M. Good, Chief
Plant Support Branch
Division of Reactor Safety

Docket No.: 50-397
License No.: NPF-21

Enclosure:
NRC Inspection Report No.
50-397/00-05

cc w/enclosure:
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REGION IV

Docket No.:	50-397
License No.:	NPF-21
Report No.:	50-397/00-05
Licensee:	Energy Northwest
Facility:	Washington Nuclear Project-2
Location:	Route 4S Richland, Washington
Dates:	February 28 through March 2, 2000
Inspector(s):	Paul J. Elkmann, Emergency Preparedness Analyst
Approved By:	Gail M. Good, Chief, Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Washington Nuclear Project-2
NRC Inspection Report No. 50-397/00-05

A routine, announced inspection of the operational status of the licensee's emergency preparedness program was conducted. The inspection included the following areas: emergency response facilities, emergency plan and implementing procedures, training, emergency planning organization, audits, and effectiveness of licensee controls.

Plant Support

- All events were properly classified. Operations and emergency preparedness follow-up to an actual event was appropriate and thorough (Section P1).

- The emergency response facilities were in good material condition and were operationally maintained. Supplies were adequate, most instruments were calibrated and operable, computers and communication circuits were operable, and ventilation systems were appropriately maintained (Section P2).

- Emergency plan implementing procedures lacked guidance for the relocation of emergency operations facility staff. The bases for determining that emergency plan revisions did not decrease the plan's effectiveness were not fully supported by documentation. The licensee's emergency plan contained several examples of outdated information. The licensee assigned additional duties to a position in the emergency response organization that were not incorporated in the emergency plan (Section P3).

- During an evaluated simulator walkthrough scenario, crews demonstrated the ability to promptly recognize plant events and to respond appropriately. Shift managers demonstrated a thorough knowledge of the requirements of the emergency director position. All emergency events were properly classified except for one general emergency. The licensee's critique process identified the missed classification, ensured that the event was entered into the corrective action system, and appropriately addressed performance problems (Section P4).

- Required radiological and environmental monitoring drills were performed as part of integrated drills; however, the integrated drill reports did not clearly document evaluations of radiological drills. A violation of 50.54(q) and Appendix E to Part 50 was identified for failure to perform annual drills that tested the capability of onsite medical personnel. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the Enforcement Policy. The licensee has entered the issue into its corrective action program as Problem Event Report 200-0407 (Section P5).

- The licensee's emergency preparedness staff was sufficient to implement the program and included appropriate technical expertise. Staffing of the emergency response organization was sufficient and had been improved by adding another team to function as drill controllers and replacements for the duty teams. The staffing of maintenance personnel in the operations support center was clarified by the licensee by assigning duty maintenance work teams to the facility (Section P6).

- The licensee conducted numerous self-assessments and audits. The audit reports were independent, structured, comprehensive, and appropriately critical. Self-assessments were frequent, critical, and covered a wide variety of program elements. The licensee selected emergency preparedness program performance indicators and appropriately concluded that the program audit frequency could be extended in accordance with 50.54(t). The licensee's review for determining audit frequency lacked definition to ensure that consistent decisions were made (Section P7.1).

- Problem evaluation reports were appropriately screened, and reviews were performed in a timely manner. Corrective actions were assigned that were reasonable and timely (Section P7.2).

Report Details

IV. Plant Support

P1 Conduct of Emergency Preparedness Activities

a. Inspection Scope (93702)

The inspector reviewed licensee event reports and emergency notifications made between July 24, 1998, and March 2, 2000, to determine if events were properly classified. The inspector also reviewed the after-action report for the June 17, 1998, notification of unusual event, which was completed September 24, 1998.

b. Observations and Findings

There were no declared emergency events since the previous inspection. All events were properly evaluated for classification. The after-action report on the June 17, 1998, notification of unusual event included a thorough characterization of most emergency preparedness functions, along with a very detailed event timeline. All risk significant activities were performed correctly and in a timely manner. The report contained an extensive and clear discussion of the emergency action levels and classification options that were considered by the emergency director.

c. Conclusions

All events were properly classified. Operations and emergency preparedness follow-up to an actual event was appropriate and thorough.

P2 Status of Emergency Preparedness Facilities, Equipment, and Resources

a. Inspection Scope (82701-2.02)

The inspector toured the technical support center, the operations support center, and the emergency operations facility to determine operational readiness. The inspector checked these facilities for adequate supplies, calibrated and operable radiation monitoring equipment, and operable computers and communication circuits. The inspector also reviewed a sample of communication circuit tests completed since July 24, 1998. The inspector walked down the ventilation system in the technical support center to determine its material condition.

b. Observations and Findings

The emergency response facilities inspected were dedicated to emergency response, except for the operations support center which was also used as a lunch area. Proper housekeeping practices were observed in all facilities. The facilities were maintained with adequate supplies and equipment, and they were ready for use. Dedicated equipment cabinets in the operations support center were sealed to prevent tampering. All communication circuits and computers checked were operational. Radiation

monitoring equipment calibrations were current, and source checks of selected instruments showed measurable instrument responses. Potassium iodide tablets were readily available and within their expiration dates. Instrumentation on the technical support center ventilation system was calibrated, and the system was in good material condition and capable of performing its function. Emergency preparedness staff was knowledgeable about the status of work orders related to emergency response facilities, and work was completed in a timely manner.

Responsibility for communication testing in the emergency response facilities was split between the licensee's emergency preparedness staff and the telecommunications group. Plant tracking methods were effective in ensuring that all communication tests were completed as required.

Three battery-powered portable air samplers were located in the operations support center to provide a means to detect airborne radioactive materials. These samplers were observed to be operational and within their calibration period. However, when run with appropriate sampling media, air flow was below the calibrated level. Because the licensee indicated that the calibration method used was only valid for the single indicated calibration point, the actual flow through the sampler could not be determined from the rotometer. The inspector expressed concerns about the effects on emergency workers in an airborne radioactivity environment as a result of the air sampler performance. Emergency preparedness staff acknowledged the concerns, immediately removed the air samplers from service, and replaced them with operational air samplers. The licensee entered this event into its corrective action program as Problem Event Report 200-0406.

c. Conclusions

The emergency response facilities were in good material condition and were operationally maintained. Supplies were adequate, most instruments were calibrated and operable, computers and communication circuits were operable, and ventilation systems were appropriately maintained.

P3 Emergency Preparedness Procedures and Documentation

a. Inspection Scope (82701-2.01)

The inspector reviewed the licensee's process for making revisions to the emergency plan and implementing procedures to determine if the changes were made in accordance with NRC regulations. The inspector reviewed selected sections of the implementing procedures for agreement with the emergency plan. The inspector also checked procedures in place at the onsite emergency response facilities to determine if current procedures were present.

b. Observations and Findings

The inspector discussed the conditions under which the primary emergency operations facility could be considered uninhabitable with emergency preparedness staff. The

licensee stated that implementing procedures for the emergency operations facility did not specify conditions under which the facility would be expected to relocate.

The inspector reviewed 50.54(q) documentation for emergency plan Revisions 20 through 24. The bases/evaluations for determining that emergency plan revisions did not decrease the plan's effectiveness were not fully documented. These evaluations consisted of a point-by-point restatement of the change summary and a statement that the described change did not constitute a decrease in effectiveness. However, the text of the evaluation did not provide evidence that the changes preserved requirements, functions, or commitments. Evaluations did not effectively link statements about particular changes to the conclusion that these changes did not decrease the plan's effectiveness and continued to meet the applicable requirements (50.47(b) and Appendix E).

The inspector noted two instances of outdated information in the emergency plan. The emergency plan described siren testing requirements that applied to electro-mechanical sirens (e.g., biweekly growl tests) while current licensee sirens contained only solid-state electronics. Also, the emergency plan contained a requirement for annual communications tests with all local agencies within the 50-mile emergency planning zone rather than with local agencies in the 10-mile emergency planning zone. The licensee entered the siren issue into its corrective action system as Problem Event Report 200-0389 and entered the unintended 50-mile versus 10-mile emergency planning zone into its corrective action system as Problem Event Report 200-0404. The licensee planned to address these issues in a future emergency plan revision.

The inspector reviewed Problem Event Report 299-0100 dated January 18, 1999, that described corrective actions for the inability to dispatch teams from the operations support center during drills. The apparent cause of the problem was that the operations support center director had too many assigned duties because he could not adequately both direct the facility and brief and dispatch teams. Corrective actions included the permanent assignment of a senior reactor operator to the operations support center to take over responsibility for team briefing and dispatch. Licensee emergency preparedness staff stated that the senior reactor operator position had been implemented in every drill since January 1999 and that team dispatch was no longer a problem.

The inspector reviewed Section 2.3 of the emergency plan to determine how the operations support center was staffed; however, the plan did not describe a senior reactor operator position in the operations support center. Licensee emergency preparedness staff stated that their current practice was to assign a senior reactor operator to a position described in the emergency plan (operations support center communicator). The inspector determined that the licensee had assigned new duties to an emergency response organization position as corrective action for PER 299-0100, but had not captured the new duties in the emergency plan. The licensee planned to revise Section 2.4.4.4 of the emergency plan to clearly separate facility management duties carried out by the operations support facility manager, and team briefing and dispatch duties carried out by the designated communicator.

c. Conclusions

Emergency plan implementing procedures lacked guidance for the relocation of emergency operations facility staff. The bases for determining that emergency plan revisions did not decrease the plan's effectiveness were not fully supported by documentation. The licensee's emergency plan contained several examples of outdated information. The licensee assigned additional duties to a position in the emergency response organization that were not incorporated in the emergency plan.

P4 Staff Knowledge and Performance in Emergency Preparedness

a. Inspection Scope (82701-2.04)

The inspector evaluated the emergency preparedness functions of two control room crews during simulator walkthroughs conducted on the plant-specific control room simulator using a dynamic scenario. Licensee evaluators also observed and evaluated each crew. The inspector evaluated each crew's performance and its capability to:

- Classify emergency events
- Notify offsite authorities
- Perform dose assessments
- Prepare appropriate protective action recommendations
- Notify offsite agencies about protective action recommendations

The scenario consisted of a series of events requiring the declaration and escalation of emergency classifications and the need to issue protective action recommendations. The scenario consisted of an operational basis earthquake with loss of boron injection capability, followed by an aftershock and an anticipated transient without scram event. The feed and condensate systems were lost after a loss of offsite power event that resulted in reactor core uncovery. A failure of containment isolation caused a release to the environment through the reactor building. Each walkthrough scenario lasted about 2 hours and was followed by a licensee critique.

b. Observations and Findings

Both operating crews performed well during the walkthrough scenarios. The crews: (1) recognized plant events and responded appropriately, (2) properly implemented the emergency operating procedures, and (3) mitigated the postulated accident. Crew communications were effective during both scenarios. The shift managers demonstrated a thorough knowledge of their emergency manager duties and were aware of protective action guides for offsite evacuation. The shift managers correctly classified emergency conditions, except for the general emergency during the second scenario. All offsite notifications were accurate and made within required times. The shift technical advisors were familiar with the dose assessment system and correctly determined protective action recommendations. Shift managers and shift technical advisers evaluated dose assessment results to determine whether protective action recommendations were required beyond the 10-mile emergency planning zone.

During the second scenario, the shift manager failed to recognize a general emergency classification based on the failure of two fission product barriers and a challenge to the third. Approximately 30 minutes later, a general emergency was declared based on dose projection results. Licensee evaluators properly identified and discussed the failure to make the general emergency classification during the post-scenario critique. The licensee captured this event in its corrective action system as Problem Event Report 200-0397 and proposed remedial activities for the personnel involved. The inspector determined that the licensee actions were appropriate.

c. Conclusions

During an evaluated simulator walkthrough scenario, crews demonstrated the ability to promptly recognize plant events and to respond appropriately. Shift managers demonstrated a thorough knowledge of the requirements of the emergency director position. All emergency events were properly classified except for one general emergency. The licensee's critique process identified the missed classification, ensured that the event was entered into the corrective action system, and appropriately addressed performance problems.

P5 Staff Training and Qualification in Emergency Preparedness

a. Inspection Scope (82701-2.04)

The inspector discussed the licensee's training program with emergency preparedness staff and reviewed the training records for selected members of the licensee's emergency response organization. Licensee records were reviewed to determine whether the following drills were conducted as required:

- In-plant health physics
- Environmental radiological monitoring
- Post-accident sampling system
- Medical
- Communications
- Integrated functional drills

b. Observations and Findings

The emergency response organization training program was consistent with emergency preparedness and training department procedures. All emergency preparedness staff met training department requirements for qualification as classroom instructors, and their qualifications were current. Training records indicated that all reviewed emergency response organization members had completed training requirements for their positions.

Drill requirements in Procedure 13.14.8, Revision 15, Drill and Exercise Program, were consistent with Section 8.7 of the emergency plan. The inspector reviewed reports for drills conducted during the last 2 years and discussed the conduct of radiological health physics, environmental monitoring, and medical drills with licensee emergency preparedness staff.

Four integrated team drills were conducted each year, one for each designated emergency response team, and in-plant and environmental monitoring drills were components in each team drill. The licensee stated that scenario elements were incorporated into integrated team drills to allow evaluation of in-plant and environmental monitoring; however, the inspector determined that the drill scope described in the integrated drill reports did not clearly describe any radiological monitoring drill components and that drill reports did not explicitly evaluate radiological monitoring performance.

The inspector concluded that documentation for the in-plant radiological and environmental monitoring drills was not sufficiently detailed to clearly establish that emergency plan commitments were being met and that all NUREG-0654, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Planning Standard N elements, were completed. Licensee staff stated that each integrated team drill met the requirements for in-plant and environmental monitoring drills. The licensee entered the issue of documenting annual performance of radiological drills into its corrective action system as Problem Event Report 200-0408.

The licensee conducted medical drills with each of three area hospitals over a 2-year period, two drills one year and one drill the following year. The licensee's drills started from an offsite event to which only offsite agencies responded. The licensee provided radiation protection staff directly to the hospital to support treatment of the contaminated injured victim. The licensee's implementation of this requirement did not drill the onsite staff who would respond to a medical emergency, including transportation from the site to a hospital. 10 CFR 50.54(q) requires that licensees follow and maintain an emergency plan that meets the planning standards of 50.47(b) and the requirements of Appendix E. Appendix E, Sections IV.F.1(b)(vi) and IV.F.1(b)(vii) require that first-aid teams, rescue teams, and medical support personnel participate in training and drills. The failure to perform annual drills that tested the capability of onsite medical personnel was identified as a violation of 50.54(q). This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the Enforcement Policy. The licensee has entered this issue into its corrective action system as Problem Event Report 200-0407.

c. Conclusions

Required radiological and environmental monitoring drills were performed as part of integrated drills; however, the integrated drill reports did not clearly document evaluations of radiological drills. A violation of 50.54(q) and Appendix E to Part 50 was identified for failure to perform annual drills that tested the capability of onsite medical personnel. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the Enforcement Policy. The licensee has entered the issue into its corrective action program as Problem Event Report 200-0407.

P6 Emergency Preparedness Organization and Administration

a. Inspection Scope (82701-2.03)

The inspector reviewed emergency preparedness department staffing and management, emergency response staffing, and agreements for offsite support. Discussions were held with senior station management, emergency preparedness staff, and key directors selected from among the emergency response organization.

b. Observations and Findings

The emergency preparedness staff consisted of five technical positions. All staff members had appropriate technical backgrounds and more than 4 years experience in the group. The staff has been stable since the previous inspection, with the exception of the planned reduction of one emergency planner during 1999. The licensee evaluated the impact of eliminating the planner position as part of the overall station reorganization. The inspector determined that emergency preparedness staffing was sufficient to implement the program.

The emergency response organization staffing was sufficient. Four duty teams were maintained with adequate controls to ensure that staffing was available. The licensee implemented a 5th emergency response team which was used as controllers and evaluators during drills and as a replacement pool for duty team personnel. A duty schedule had also been established to assign maintenance work teams to the operations support center.

c. Conclusions

The licensee's emergency preparedness staff was sufficient to implement the program and included appropriate technical expertise. Staffing of the emergency response organization was sufficient and had been improved by adding another team to function as drill controllers and replacements for the duty teams. The staffing of maintenance personnel in the operations support center was clarified by the licensee by assigning duty maintenance work teams to the facility.

P7 Quality Assurance in Emergency Preparedness Activities

P7.1 Nuclear Assurance Division Audits of Emergency Preparedness Program

a. Inspection Scope (82701-02.05)

The inspector examined emergency preparedness program surveillances for 1998 and 1999 prepared by the quality department to determine compliance with NRC requirements. The inspector also reviewed requirements for reviewing and maintaining emergency preparedness documents.

b. Observations and Findings

The inspector reviewed nine emergency preparedness program audits and self-assessments which were conducted since the previous inspection. Full program audits were conducted by the quality department in 1998 and 1999 that were structured, comprehensive, and critical. The audit was conducted by staff members who were independent of the emergency preparedness organization and had appropriate expertise in the subject. Teams included members from offsite agencies and other utilities. The 1999 audit identified a continuing problem in completing corrective actions for some Problem Event Reports. The numerous self-assessments performed by the licensee were appropriately focused and resulted in corrective actions and recommendations for improvement.

The inspector reviewed Surveillance SR2000-005, "Evaluation of Emergency Preparedness Performance," dated February 3, 2000, and discussed the contents with emergency preparedness and quality department staff. The licensee performed this surveillance in accordance with the revised 10 CFR 50.54(t) and concluded that a full program audit was not necessary for calendar year 2000. The surveillance identified seven performance indicators that the licensee selected to trend program performance; it also discussed other program and performance elements that were considered in reaching the licensee's conclusion that an annual audit was not required. The inspector determined that the licensee's conclusion was appropriate. However, the inspector determined that the licensee did not clearly define evaluation criteria for its internal program performance indicators that would be used to determine that an audit was required. The inspector expressed a concern that the need for a necessary program audit could go unrecognized, due to the lack of predetermined evaluation criteria. The licensee acknowledged the inspectors concerns and entered the issue into its corrective action program at Problem Event Report 200-0426.

c. Conclusions

The licensee conducted numerous self-assessments and audits. The audit reports were independent, structured, comprehensive, and appropriately critical. Self-assessments were frequent, critical, and covered a wide variety of program elements. The licensee selected emergency preparedness program performance indicators and appropriately concluded that the program audit frequency could be extended in accordance with 50.54(t). The licensee's review for determining audit frequency lacked definition to ensure that consistent decisions were made.

P7.2 Effectiveness of Licensee Controls

a. Inspection Scope (82701-02.06)

The inspector reviewed entries in the problem evaluation report (plant corrective action) system that were assigned to the emergency preparedness department since July 24, 1998. Eight of the 55 problem evaluation reports were selected for detailed review.

b. Observations and Findings

The inspector reviewed the most risk-significant problem evaluation reports assigned to emergency preparedness, some of which were currently open and others which were completed. The problem evaluation reports received a proper level of screening and causes were appropriately determined. Problem evaluation report reviews and corrective actions were timely and reasonable.

c. Conclusions

Problem evaluation reports were appropriately screened, and reviews were performed in a timely manner. Corrective actions were assigned that were reasonable and timely.

P8 Miscellaneous Emergency Preparedness Issues

P8.1 (Closed) IFI 50-397/98014-02: Failure to recognize the need for protective action recommendations beyond 10 miles. Shift managers and shift technical advisors recognized the potential for extended protective actions and appropriately discussed whether dose projections indicated a need for protective action recommendations beyond 10 miles during simulator walkthrough scenarios.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on March 2, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

Followup discussions were held on March 20 and 29, 2000, between NRC Region IV and Messrs. P. Inserra, S. Boynton, T. Messersmith and staff to discuss the characterization of the audit frequency issue.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

S. Boynton, Manager, Quality
D. Coleman, Manager, Regulatory Affairs
J. Dabney, Outage Manager
K. Engbarth, Quality Lead Auditor
G. Hendrick, Manager, Operations Support
J. Hunter, Health Physics Staff Advisor
P. Inserra, Manager, Licensing
R. Jorgensen, Onsite Emergency Preparedness Lead
J. Kittler, Shift Manager
A. Langdon, Assistant Manager, Technical Services
T. Messersmith, Manager, Emergency Preparedness, Safety and Health
W. Shaeffer, Training Manager
R. Sherman, Licensing Engineer
G. Smith, Vice President Generation, Plant General Manager
R. Torres, Manager, Technical Services
R. Webring, Vice President, Operations Support

NRC

G. Replogle, Senior Resident Inspector
J. Rodriguez, Resident Inspector

INSPECTION PROCEDURES USED

IP 82701:	Operational Status of the Emergency Preparedness Program
IP 92904:	Follow Up - Plant Support
IP 93702:	Prompt Onsite Responses to Events at Operating Power Reactors

ITEMS OPENED AND CLOSED

Opened and Closed

00-05-01	NCV	Licensee did not perform annual drills that tested the capability of onsite medical personnel (Section P5).

Closed

98014-02	IFI	Failure to recognize the need for protective action recommendations beyond 10 miles (Section P8.1).

LIST OF DOCUMENTS REVIEWED

Plant Procedures:

1.3.43	Licensing Basis Impact Determinations	Revision 15
1.4.5	Processing of Licensing Document Changes	Revision 16
13.11.1	EOF Managers Duties	Revision 21
13.11.7	Radiological Emergency Managers Duties	Revision 19
13.14.8	Drill and Exercise Program	Revision 15
SWP PRO-02	Preparation, Review, Approval, and Distribution of Procedures	Revision 6

Other Documents:
FAAR32, Final After-Action Report, June 17, 1998, Unusual Event, September 24, 1998
1998 Quarterly Training Drill Cycle Drill Report, June 29, 1998
1999 Team D Training Drill Report, February 1, 2000
1999 Mini-Drill Scenario for PASS Drill, October 28, 1999

WNP2 Emergency Preparedness Status Reports: 2nd Quarter 1998 through 4th Quarter 1999

Audit Report AU298-008, Emergency Preparedness Program, April 10, 1998
Audit Report AU298-037, Corrective Action Program, July 22, 1998
Audit Report AU299-007, WNP2 Emergency Preparedness Program, April 15, 1999
1999 Emergency Preparedness Self Assessment Report, June 15, 1999
Self Assessment of the Alert & Notification System, August 11, 1999
Emergency Preparedness Self Assessment Closure Documentation for PTL160257, September 24, 1999
Self Assessment: Emergency Action Level Revision Review, December 14, 1999
Surveillance SR2000-005, Evaluation of Emergency Preparedness Performance, February 3, 2000
PTL160482/SARPT: Emergency Preparedness Record Retention Self Assessment, February 23, 2000

Licensing Evaluation LE98-07
Licensing Evaluation LE99-04

Emergency Phone Directory, Revision 44, December 28, 1999

Problem Evaluation Requests:

200-0389	299-0100
200-0397	299-0966
200-0404	299-1593
200-0406	299-1623
200-0407	299-1829
200-0408	299-2017
200-0426	299-2653
297-0205	

50-397
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Docket: 05000397

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

MAR 17 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT NO. 50-397/00-04

Dear Mr. Parrish:

This refers to the inspection conducted on January 9 through February 19, 2000, at the WNP-2 facility. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations are being treated as noncited violations, consistent with Section VII.B.1.a of the Enforcement Policy. The noncited violations are described in the subject inspection report. If you contest the violations or severity level of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the WNP-2 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if requested, will be placed in the NRC Public Document Room.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Linda Joy Smith

Linda Joy Smith, Chief
Project Branch E
Division of Reactor Projects

Docket No.: 50-397
License No.: NPF-21

Enclosure:
NRC Inspection Report No. 50-397/00-04

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-397
License No.:	NPF-21
Report No.:	50-397/00-04
Licensee:	Energy Northwest
Facility:	WNP-2
Location:	Richland, Washington
Dates:	January 9 through February 19, 2000
Inspectors:	G. D. Replogle, Senior Resident Inspector J. P. Rodriguez, Resident Inspector J. F. Melfi, Project Engineer
Approved By:	Linda Joy Smith, Chief, Project Branch E, Division of Reactor Projects
ATTACHMENT:	Supplemental Information

EXECUTIVE SUMMARY

WNP-2
NRC Inspection Report No. 50-397/00-04

This information covers a 6-week period of resident inspection.

Operations

- The conduct of operations was professional and safety conscious. Operators were consistently knowledgeable of important plant issues and properly anticipated plant operations. Equipment was properly aligned (Sections O1.1 and O2.1).

Maintenance

- In general, most maintenance and surveillance activities were performed in a thorough and effective manner. In particular, the Division II, 125 Vdc battery charger work was exceptionally well planned and executed. The work involved entering a 2-hour Technical Specification shutdown action statement. Management involvement and oversight were excellent (Sections M1.1 and M1.2).

Engineering

- The inspectors identified a vulnerability with the use of the reactor core isolation cooling system during a station blackout event. The system is risk significant for station blackout and is vulnerable to repetitive water hammers, which may challenge system operability, the integrity of the reactor coolant pressure boundary, or the integrity of the primary containment. The system keep-fill pump fails during a station blackout, and cycling of the primary pump, as designed, likely causes repetitive water hammer. Also, the Individual Plant Evaluation did not consider the potential challenges to system operability under station blackout conditions. This is an unresolved item pending further NRC review of the risk implications of the current reactor core isolation cooling system design, after considering the results of the planned water hammer analysis (Section E2.1).

- The inspectors identified a 10 CFR 50.55a violation in that certain valves in containment bypass lines had specific leakage limits but were not being leak-rate tested. 10 CFR 50.55a requires that safety-related valves be tested in accordance with the ASME Code. The Code requires leak-rate testing for valves that are assigned specified leakage limits. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. The problem is in the licensee's corrective action program as Problem Evaluation Request 298-0928 (Section E8.1).

Plant Support

- The inspectors identified a violation of Technical Specification 5.7.1.b, which requires radiation work permit controls for work in high radiation areas. Limit switch work for reactor water cleanup system Valve RWCU-V-437A was inadvertently performed on Valve RWCU-V-433. As a result, maintenance craftsmen worked on a valve that was

not covered by a radiation work permit. The work did not adversely affect plant operations; however, workers received approximately 100 millirem of additional dose. Several departments failed to properly communicate. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. The problem is in the licensee's corrective action program as Problem Evaluation Request 200-0109 (Section R1.1).

- Emergency preparedness facilities were properly maintained and on-shift staffing was consistent with the Emergency Plan (Section P2.1).

- Protected area illumination levels, maintenance of the isolation zones around protective area barriers, and security power supply equipment were properly maintained (Section S2.1).

Report Details

Summary of Plant Status

At the beginning of the inspection period, the plant operated at 100 percent power where it remained for most of the inspection interval. Power was reduced briefly on January 22, 2000, to 75 percent and on February 19 to 85 percent to establish a new control rod pattern, perform surveillance testing, and accomplish selected maintenance tasks in high radiation areas.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

Operators were knowledgeable of important plant parameters and problems and were appropriately focused on safety.

O2 Operational Status of Facilities and Equipment

O2.1 Engineered Safety Feature System Walkdowns

a. Inspection Scope (71707)

The inspectors walked down accessible portions of the following safety-related systems:

- High pressure core spray
- Low pressure core spray
- Residual heat removal, Trains A, B, and C
- Reactor core isolation cooling (RCIC)
- Divisions I, II, and III emergency diesel generators
- Standby liquid control system
- Standby gas treatment system, Trains A and B

b. Observations and Findings

The inspectors found the systems properly aligned for the plant conditions and generally in good material condition.

II. MAINTENANCE

M1 Conduct of Maintenance

M1.1 General Comments - Maintenance

a. Inspection Scope (61726, 62707)

The inspectors inspected the following maintenance activities:

- Work Order 01005292, Division II 125 Vdc Charger Repair
- Work Order RGV-02, Valve RWCU-V-437A, Limit Switch Adjustments (event-related review)
- Work Order 29008391, Division II 125 Vdc Battery Cell Replacement
- Surveillance ESP-B12-Q101, "Quarterly Battery Testing 125 VDC E-B1-2"
- Work Order 01007866, RCIC Keep-fill Pump Repair

b. Observations and Findings

Maintenance and surveillances were generally conducted in a thorough and professional manner. Good performance associated with 125 Vdc charger work is discussed in Section M1.2. Problems with craftsmen working on the wrong reactor water cleanup system valve are discussed in Section R1.1.

M1.2 Division II, 125 Vdc Charger Work

The Division II, 125 Vdc charger has operated erratically and the reliability of the unit was questionable. For example, on December 29 and 30, 1999, at several different times the charger amps inexplicably increased from 90 to 130 amps and then decreased to about 30 amps before returning to normal. The licensee considered the erratic charger operation a significant concern because charger failure would place the plant in a 2-hour Technical Specification shutdown action statement. Following the 2 hours, operators would have an additional 12 hours to shut down the plant. Accordingly, the inspectors determined that on-line troubleshooting and repairs were justified.

The maintenance was well planned. Prior to work, electricians performed the work steps on a charger mockup. During the job, several components were checked and replaced, and work proceeded in an uneventful manner. However, the cause of the erratic operation was not conclusively determined. The job took approximately 6 hours, as expected, and a plant shutdown was not initiated. Planning and management oversight were considered excellent and appropriate to the circumstances. The performance of the charger was stable following the maintenance.

c. Conclusions

The Division II, 125 Vdc battery charger work was exceptionally well planned and executed. The work involved entering a 2-hour Technical Specification shutdown action statement. Management involvement and oversight were excellent.

III. ENGINEERING

E2 Engineering Support of Facilities and Equipment

E2.1 RCIC System Contribution to Station Blackout

a. Inspection Scope (37551)

The inspectors reviewed the licensing and design requirements associated with the RCIC system during a station blackout event.

b. Observations and Findings

Background: The RCIC system is a safety-related system that was credited for the control rod drop accident and is relied upon during a station blackout (complete loss of ac power).

A station blackout is the most risk-significant event at WNP-2 and the RCIC system is risk-important to the plant response. The risk achievement worth of the RCIC pump at WNP-2 is in the range of 2 to 3 and the Individual Plant Evaluation states that the baseline core damage frequency is about 1.7E-05/yr. Using these numbers, the increase in core damage frequency because of guaranteed RCIC failure during station blackout would be about 2.0E-05 to 3.0E-05 per year. The risk is relatively high because only two systems (RCIC and high pressure core spray) are available to mitigate the event.

System injection is controlled by starting and stopping the primary system pump. In automatic, the RCIC pump stops at reactor vessel Level 8 and restarts at Level 2. The barometric condenser is an atmospheric condenser that receives RCIC turbine drains and gland seal steam leak-off and main steam valve stem leak-off. During RCIC operation, some RCIC pump discharge flow is bypassed through the lube oil cooler and then provides cooling spray for the barometric condenser. The condensate is then directed to the RCIC condensate tank (a barometric condenser vacuum tank). The condensate is pumped to the suction of the RCIC pump or to an equipment drain sump. Under station blackout conditions, the automatic controls for the barometric condenser pump do not work, as they rely on ac power, so the pump would have to be manually operated or condensate would spill from a relief valve and onto the RCIC room floor.

As documented in NRC Inspection Report 50-397/99-13, the inspectors had identified that a RCIC water hammer analysis, utilized to justify the nonsafety status of the RCIC keep-fill pump, was inadequate. Accordingly, a potential water hammer on the RCIC system was not analyzed.

On February 2, the licensee reported, per 10 CFR 50.72 (Event 36653), that the plant was operated outside the design basis. Specifically, the licensee reported that a random failure of the keep-fill pump at any time during RCIC operation could result in an unanalyzed water hammer on the RCIC system, RCIC containment isolation valves, and RCIC piping that is part of the reactor coolant pressure boundary. The licensee further

indicated that the problem was not significant because operators were alerted to the condition by a control room alarm and had sufficient time to secure RCIC. Subsequent to a loss-of-fill condition, the system would only be used, if needed, while implementing emergency operating procedures. The report did not address, however, the guaranteed loss of the keep-fill pump during station blackout conditions.

Vulnerability: The inspectors identified a vulnerability with the use of the RCIC system during a station blackout event. The system keep-fill pump relies on Division I ac power and fails during a station blackout. When the RCIC pump stops, the RCIC injection line drains to the barometric condenser at a rate of approximately 25 gpm. This results in a loss of fill condition in the RCIC injection line and any subsequent start of the RCIC pump would likely result in water hammer. Depending on the severity, the water hammers could breach the reactor coolant pressure boundary, render the RCIC system inoperable, or damage containment isolation valves.

In response to the inspectors' concern, the licensee noted that emergency operating procedures already require operators to take manual control of RCIC injection and prevent the system from tripping at Level 8. If the system did not have to be restarted, under station blackout conditions, a water hammer would be averted.

The inspectors checked historical documents and discussed RCIC operation with plant operators. The inspectors found that operators were not normally successful at controlling reactor level with RCIC and preventing the system from tripping at Level 8. For example, on September 18, 1999, during a normal plant shutdown, operators attempted to control vessel inventory with RCIC, but the system still tripped on Level 8. Additionally, following a March 11, 1998, scram with main steam isolation valve closure, the on-shift operator informed the inspectors that level control with RCIC was difficult and the system tripped on Level 8 approximately three times. Restart of the system at the time was not a problem because normal ac power was available and the keep-fill pump was operational.

In addition to the above, the inspectors determined that RCIC level control during a station blackout would be even more challenging for the following reasons:

- As discussed in NRC Inspection Report 50-397/98-11, Section 2.b.3, the RCIC condensate tank level switch also receives Division I AC power and, therefore, fails during a station blackout. Consequently, operators are tasked with manually operating the barometric condenser pump to prevent flooding in the RCIC room. Procedures instruct operators to run the pump for 4 minutes, 30 seconds and secure the pump for 30 seconds, during each 5-minute interval. This work-around would divert the operator's attention from reactor vessel level control.

- During a station blackout, the main steam isolation valves close, and operators manually control pressure by operating safety relief valves. This task diverts the operators' attention from reactor vessel level control. Additionally, the reactor vessel level swells approximately 20 inches when a safety relief valve is opened, which makes precise level control with RCIC more difficult.

- Station blackout is a very challenging event, as most plant equipment fails from loss of power. Because of the event complexity, operators are not likely to attempt manual RCIC control for several minutes. During this time, while the RCIC system is operating in automatic, the system will likely trip at Level 8. For example, during the March 11, 1998, main steam isolation valve closure event, reactor water level reached Level 8, the high pressure core spray system tripped, and operators did not initially know that this had occurred.

Considering the preceding information, the inspectors concluded that there was not reasonable assurance that operators could successfully control water level with RCIC during a station blackout event. Accordingly, operators would likely be forced to secure RCIC and rely on high pressure core spray alone or initiate RCIC and bear the consequences of a system water hammer.

Risk Model Fidelity: The inspectors also observed that the WNP-2 Individual Plant Evaluation did not account for the noted RCIC operational problems. The RCIC system was modeled as if there were no potential RCIC operational challenges from the water hammer threat. The potential impact to the reactor coolant pressure boundary was also ignored. The inspectors determined that changes to the model were appropriate in order to more accurately reflect plant design and risk. The licensee agreed with the inspectors' observation and planned to make the necessary changes once the threat from water hammer was better understood. The planned actions were acceptable.

Station Blackout Licensing Basis: The WNP-2 Final Safety Analysis Report states, in part:

> The WNP-2 station blackout emergency response procedure provides guidance for responding to a station blackout including specific instructions for (1) providing for core cooling if HPCS and/or reactor core isolation cooling (RCIC) are available . . .
>
> The basis for the WNP-2 response to the station blackout rule is use of HPCS which is safety related and already adequately covered in TSs . . .

NOTE: The sole use of high pressure core spray for station blackout coping is inconsistent with the NRC safety evaluation on the issue.

In the WNP-2 station blackout safety evaluations, the Agency did not require that RCIC remain operable for the entire duration of a station blackout event. The NRC Safety Evaluation Report, dated December 30, 1991, stated, in part:

> The licensee, however, stated that both RCIC and HPCS pumps will be available to maintain the RCS [reactor coolant system] inventory, and the RCIC pump will not be shut down. It is the staff's understanding that the licensee will use RCIC until it fails due to high temperature (no other failure is assumed). Since HPCS can support the functions provided by the RCIC pump, the staff concludes that RCIC failure is of no concern.

NOTE: The NRC supplemental safety evaluation dated June 26, 1992, made similar statements to those identified above.

NRC Assessment: While the NRC did not require the licensee to maintain the RCIC system operable for the entire duration of a station blackout event, the NRC did not have an opportunity to quantitatively consider risk at the time the station blackout coping strategy was approved. Further, the vulnerability to water hammer was not known and the consequences of such an event on the RCIC system, the reactor coolant pressure boundary, and the primary containment are still not known.

At the close of the inspection, the licensee continued to analyze the consequences of a RCIC water hammer. Considering the risk importance of RCIC to station blackout, more review is warranted to understand the risk implications of this analysis and to determine whether a backfit should be considered in accordance with 10 CFR 50.109. The potential backfit may require the licensee to modify RCIC to remain functional and not vulnerable to water hammer during a station blackout. This is an unresolved item pending further NRC review of the risk implications of the current RCIC system design after considering the results of the planned water hammer analysis (URI 50-397/00004-01).

c. Conclusions

The inspectors identified a vulnerability with the use of the RCIC system during a station blackout event. The system is risk significant for station blackout and is vulnerable to repetitive water hammers, which may challenge system operability, the integrity of the reactor coolant pressure boundary, or the integrity of primary containment. The system keep-fill pump fails during a station blackout, and cycling of the primary pump, as designed, likely causes repetitive water hammer. Also, the Individual Plant Evaluation did not consider the potential challenges to system operability under station blackout conditions. This is an unresolved item pending further NRC review of the risk implications of the current RCIC system design, after considering the planned water hammer analysis.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) Unresolved Item 50-397/98015-04: failure to test bypass leakage valves.

Inspectors identified that the licensee had specified valve-specific leakage criteria for 19 potential bypass leakage pathways; however, the licensee had not leak-rate tested the associated valves in accordance with 10 CFR 50.55a and the ASME Code. Further, the documented leakage limits were so small that it was not reasonable for the licensee to assume that leakage was below the specified limits without testing.

At the time of that inspection, the licensee stated that a new analysis, utilizing General Electric Report 22A5718, "Mark III Containment Dose Reduction Study," had demonstrated that permissible leakage past the valves was about 100 gpm and could easily be observed during normal operation. The report, in part, reduced the iodine release fraction substantially from that originally utilized in the NRC's Standard Review

Plan. Accordingly, the licensee had planned to change the licensing basis to delete the need for leakage testing. The inspectors referred the analysis to the Office of Nuclear Reactor Regulation for further consideration.

The Office of Nuclear Reactor Regulation found that the General Electric report did not specify how the General Electric iodine partition coefficients were derived. The partition coefficients were an important factor in decreasing the assumed offsite iodine release rate. Sheet 37 of the report identified that the values were taken from a phone conversation, which was cited as Reference 13. The Office of Nuclear Reactor Regulation concluded that the General Electric report was not acceptable, and, unless the licensee provides some other technically justifiable method for determining leakage limits, WNP-2 leakage limits should be determined by methods found in Standard Review Plan 15.6.5. This type of justification is not acceptable to the NRC.

In response to the NRC position, the licensee performed an operability determination and concluded that the valves remained operable. The licensee stated that most valve pathways were not of immediate concern because leakage past the valves is directed to sumps in the reactor building or the radwaste building. Each building is equipped with a charcoal filtration system to limit the release of fission products to the environment. For the remaining five pathways in the RCIC and high pressure core spray systems (each pathway has two closed valves), the licensee used the iodine partition coefficients specified in Standard Review Plan 15.6.5 and determined that the cumulative leakage limit for all the pathways totaled 2.4 gpm. A review of leakage test results for valves in a similar condition indicated that the expected leakage was about 0.2 gpm per valve, which, in aggregate, remained below the 2.4 gpm limit. Since each line contained two closed valves, the licensee believed that this provided reasonable confidence that leakage through any individual pathway was less than 0.2 gpm.

Additionally, the licensee referenced pressure decay data on the RCIC and high pressure core spray systems. The data indicated that the systems were reasonably leak-tight. Therefore, significant leakage across the boundary valves was not likely. The inspectors determined that the operability evaluation was acceptable and met the intent for an initial operability assessment per Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," Revision 1.

The failure to leak test the valves violated 10 CFR 50.55a. This requirement specifies, in part, that testing be performed in accordance with the ASME Code. The licensee was committed to ASME/ANSI Operations and Maintenance Standards, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants," OMa-1988 Addenda to Operations and Maintenance 1987 Edition. This Code specifies, in part, that Category A valves are those for which seat leakage is limited to a specific maximum amount in the closed position for fulfillment of their required functions. Additionally, the Code requires that these valves be seat-leakage tested to verify their leak-tightness integrity. Final Safety Analysis Report Section 6.2.3.2 specified that several lines penetrate outside of containment and certain valves in those lines were assigned leakage limits. Therefore, the valves were required to be classified as Category A valves and leak-rate tested. This Severity Level IV violation is being treated as a noncited violation, consistent with

Section VII.B.1.a of the NRC Enforcement Policy (50-397/00004-02). The problem is in the licensee's corrective action program as Problem Evaluation Request 298-0928.

E8.2 (Closed) Inspection Followup Item 50-397/98011-02: RCIC barometric condenser level control system design adequacy.

This issue was subsequently addressed in NRC Inspection Report 50-397/99-13, where a Notice of Violation was issued to address remaining problems (VIO 50-397/99013-01).

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Craftsmen Get Extra Dose Working on the Wrong Reactor Water Cleanup Valve

a. Inspection Scope (62707)

On January 18, 2000, craftsmen worked on the wrong reactor water cleanup valve during maintenance. The inspectors investigated the event facts and consequences.

b. Observations and Findings

Backwash system Valve RWCU-V-437A had lost control room indication. On January 18, craftsmen attempted to adjust exterior limit switches to restore valve indication. The valve was located in a high radiation area.

While the craftsmen were supposed to adjust the limit switches on Valve RWCU-V-437A, they mistakenly adjusted the limit switches on Valve RWCU-V-433, which was abandoned in place and no longer utilized. The workers attempted to adjust the wrong limit switch components several times. The problem was identified when one of the craftsmen heard Valve RWCU-V-437A move during operational checks in a different location. The workers received approximately 100 millirem of additional exposure. The work did not cause any operational problems, as Valve RWCU-V-433 was not repositioned during the job.

Several departments were involved in the job preparation, including Operations and Radiation Protection. During the prejob brief, the workers were provided a picture of the wrong valve. A health physics technician initially identified the valve using the picture but did not check the tag. The craftsmen also failed to check the tag.

An Investigation Review Board was conducted and plant personnel were briefed on the event. Managers stressed self-checking techniques to all pertinent plant staff. The inspector found the licensee response to be acceptable.

The failure to work on the correct valve resulted in a Technical Specification 5.7.1.b violation. This Technical Specification requires radiation work permit controls for work in high radiation areas. Radiation Work Permit 30000058-02 was applicable to work on Valve RWCU-V-437A, not Valve RWCU-V-433. A radiation work permit was not

generated for work on Valve RWCU-V-433. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy (50-397/00004-03). The problem is in the licensee's corrective action program as Problem Evaluation Request 200-0109.

c. Conclusions

The inspectors identified a violation of Technical Specification 5.7.1.b, which requires radiation work permit controls for work in high radiation areas. Limit switch work for reactor water cleanup system Valve RWCU-V-437A was inadvertently performed on Valve RWCU-V-433. As a result, maintenance craftsmen worked on a valve that was not covered by an radiation work permit. The work did not adversely affect plant operations, but workers received approximately 100 millirem of additional dose. Several departments failed to properly communicate. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. The problem is in the licensee's corrective action program as Problem Evaluation Request 200-0109.

P2 Status of Emergency Preparedness Facilities, Equipment, and Resources

P2.1 General Comments (71750)

During routine plant tours, the inspectors verified that the emergency preparedness facilities were properly maintained and that the licensee maintained at least the minimum staffing required by their Emergency Plan. No problems were found.

S2 Status of Security Facilities and Equipment

S2.1 General Comments (71750)

During routine tours, the inspectors observed protected area illumination levels, maintenance of the isolation zones around protective area barriers, and the status of security power supply equipment. No problems were observed.

V. MANAGEMENT MEETINGS

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management on February 17, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. V. Parrish, Chief Executive Officer
D. K. Atkinson, Engineering Manager
I. M. Borland, Radiation Protection Manager
S. A. Boynton, Quality Assurance Manager
J. W. Dabney, Outage Manager
P. J. Inserra, Licensing Manager
D. W. Martin, Security Manager
W. S. Oxenford, Operations Manager
D. J. Poirier, Maintenance Manager
G. O. Smith, Vice President - Generation/Nuclear Plant General Manager
R. L. Webring, Vice President - Operations Support

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observations
IP 71707:	Plant Operations
IP 71750:	Plant Support
IP 92903:	Engineering Followup

ITEMS OPENED AND CLOSED

Opened

50-397/00004-01	URI	Reactor core isolation cooling system vulnerability during station blackout (Section E2.1).

Opened and Closed

50-397/00004-02	NCV	Failure to local leak rate test containment bypass valves (Section E8.1).
50-397/00004-03	NCV	Failure to follow high radiation area radiation work permit (Section R1.1).

Closed

50-397/98015-04	URI	Failure to local leak rate test containment bypass valves (Section E8.1).
50-397/98011-02	IFI	Adequacy of the design of the RCIC barometric condenser level control (Section E8.2).

LIST OF ACRONYMS USED

ac	alternating current
ASME	American Society of Mechanical Engineers
ANSI	American Nuclear Standards Institute
CFR	Code of Federal Regulations
gpm	gallons per minute
IFI	Inspector Followup Item
NCV	noncited violation
NRC	U.S. Nuclear Regulatory Commission
RCIC	reactor core isolation cooling
URI	unresolved item
Vdc	volts, direct current

50-397
1/25/2000
00-03

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 25, 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT NO. 50-397/00-03

Dear Mr. Parrish:

This refers to the inspection conducted on January 10-13, 2000, at the Washington Nuclear Project-2 facility. The inspection focused on the implementation of the radiological environmental monitoring program. The enclosed report presents the results of this inspection. In addition, on January 19, 2000, Messrs. Rhoads and Wooley of your staff and the inspector, Mr. Shannon, had a follow-up telephone call to review one of the inspection findings.

Overall, the NRC concluded that the radiological environmental monitoring program was effectively implemented.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation is being treated as a noncited violation (NCV), consistent with Section VII.B.1.a of the Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or severity level of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Washington Nuclear Project-2 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, if requested, will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Gail M. Good, Chief
Plant Support Branch
Division of Reactor Safety

Docket No.: 50-397
License No.: NPF-21

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NRC Inspection Report No.
50-397/00-03

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E-Mail report to D. Lange (DJL)
E-Mail report to NRR Event Tracking System (IPAS)
E-Mail report to Document Control Desk (DOCDESK)

E-Mail notification of report issuance to the WNP SRI and Site Secretary (GDR, HIB).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE06)

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-397
License No.:	NPF-21
Report No.:	50-397/00-03
Licensee:	Energy Northwest
Facility:	Washington Nuclear Project-2
Location:	Richland, Washington
Dates:	January 10-13, 2000
Inspector:	Michael P. Shannon, Senior Radiation Specialist
Approved By:	Gail M. Good, Chief, Plant Support Branch
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Washington Nuclear Project-2
NRC Inspection Report No. 50-397/00-03

The inspection reviewed the radiological environmental monitoring and the meteorological monitoring programs.

Plant Support

- The radiological environmental monitoring program was effectively implemented. Sampling stations were properly maintained and located as described in the Offsite Dose Calculation Manual. Sample collection logs and receipt forms were controlled in accordance with procedural and management expectations. There were no abnormal plant releases or changes to the Offsite Dose Calculation Manual that adversely affected the radiological environmental monitoring program (Section R1.1).

- An effective meteorological monitoring program was in place. Instrumentation was calibrated in accordance with the commitments of Section 7.5.1.6.2 of the Updated Final Safety Analysis Report. The performance of the meteorological monitoring equipment exceeded the guidance contained in Regulatory Guide 1.23. Appropriate meteorological data were transmitted and displayed in the control room, emergency operations facility, and technical support center (Section R1.2).

- Personnel assigned to collect and process radiological environmental monitoring program samples were fully qualified to perform assigned tasks (Section R4).

- The organization, staffing, and assignment of the radiological environmental monitoring program responsibilities were effectively implemented (Section R6).

- An effective audit of the in-house portion of the radiological environmental monitoring program was performed by qualified auditors. Audit findings were properly documented and tracked in the station's corrective action program (Section R7.1).

- A violation of Technical Specification 5.4.1.c was identified for the failure to audit a contract supplier's environmental thermoluminescent dosimeter quality assurance program (part of the radiological environmental monitoring program). This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a.of the NRC Enforcement Policy. On January 13, 2000, the licensee wrote Problem Evaluation Request 200-0078 documenting this issue (Section R7.1).

- The station captured radiological environmental monitoring and meteorological monitoring program issues at the proper threshold to identify equipment and program problems (Section R7.2).

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiological Environmental Monitoring Program

a. Inspection Scope (84750)

The radiological environmental monitoring program was reviewed to determine compliance with Technical Specifications and Offsite Dose Calculation Manual requirements. Selected environmental sampling stations were inspected.

b. Observations and Findings

The inspector visited and examined the following media sampling locations: airborne, thermoluminescent dosimeter, and surface and groundwater sample locations. All stations and equipment were properly maintained. All sampling stations were located as described in the Offsite Dose Calculation Manual. Air sampler equipment was calibrated in accordance with procedural requirements using instrumentation traceable to known standards.

No problems were noted during a walk through of the sample preparation, collection, shipping, and analytical processes performed by an Environmental Scientist. Consumable supplies appeared to be adequate to effectively implement the program. From a review of sample collection logs, receipt forms, and analysis results, the inspector determined that these documents were maintained in accordance with procedural requirements and management expectations. Sample analyses were performed in accordance with the requirements of Table 5-1 of the Offsite Dose Calculation Manual.

The inspector determined that the 1998 annual Radiological Environmental Operating Report and the 1998 Radioactive Effluent Release Report sections pertaining to the Meteorological and Offsite Dose Calculation Manual Revisions were submitted in accordance with Technical Specification requirements and contained the required information. The inspector noted that there were no abnormal plant releases or changes to the Offsite Dose Calculation Manual that adversely affected the radiological environmental monitoring program.

The licensee participated in an interlaboratory comparison program as required by Section 5.3 of the Offsite Dose Calculation Manual. No problems were noted during the review of the analytical results from the interlaboratory comparison program.

g. Conclusions

The radiological environmental monitoring program was effectively implemented. Sampling stations were properly maintained and located as described in the Offsite Dose Calculation Manual. Sample collection logs and receipt forms were controlled in

accordance with procedural and management expectations. There were no abnormal plant releases or changes to the Offsite Dose Calculation Manual that adversely affected the radiological environmental monitoring program.

R1.2 Meteorological Monitoring Program

a. Inspection Scope (84750)

The meteorological monitoring program was reviewed to determine agreement with commitments in the Updated Final Safety Analysis Report and the guidance in NRC Regulatory Guide 1.23. The inspector reviewed meteorological data collection and displays at station facilities, instrument calibration procedures, and records to ensure that the meteorological instrumentation was operable, properly calibrated, and maintained.

b. Observations and Findings

During a tour of the meteorological tower's primary and backup instrumentation, the inspector verified that the instrumentation agreed with the commitments in Section 2.3.3 of the Updated Final Safety Analysis Report and the guidance in Regulatory Guide 1.23. No problems or deficiencies were identified with the meteorological towers and the associated instrument indicators in the control room, emergency operations facility, and technical support center.

Calibrations of meteorological instrumentation were performed in accordance with Updated Final Safety Analysis Report commitments and the recommendations of Regulatory Guide 1.23. Data recovery rates exceeded the 90 percent recommendation of Regulatory Guide 1.23 for 1998 and 1999 (95 and 91 percent respectively). The licensee informed the inspector that the decrease in data recovery rates for 1999 was due primarily to the age of the equipment. The system engineer responsible for the meteorological instrumentation informed the inspector that new equipment was scheduled to be installed later this year which should improve the data recovery rate.

c. Conclusions

An effective meteorological monitoring program was in place. Instrumentation was calibrated in accordance with the commitments of Section 7.5.1.6.2 of the Updated Final Safety Analysis Report. The performance of the meteorological monitoring equipment exceeded the guidance contained in Regulatory Guide 1.23. Appropriate meteorological data were transmitted and displayed in the control room, emergency operations facility, and technical support center.

R3 Procedures and Documentation

R3.1 Radiological Environmental Monitoring Program Implementing Procedures

The procedures used for sample preparation, collection, and shipment of environmental media samples were reviewed. The inspector determined that descriptive radiological environmental monitoring program implementing procedures were maintained to ensure compliance with the Offsite Dose Calculation Manual requirements.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

Selected environmental monitoring program personnel were observed and interviewed to determine their knowledge of the radiological environmental monitoring program sampling and analyses requirements and implementing procedures.

b. Observations and Findings

There were two environmental scientists qualified to collect and process radiological environmental monitoring program samples. From a review of training records and interviews with these individuals, the inspector determined that these individuals were fully qualified to perform radiological environmental monitoring program assigned tasks. Both individuals demonstrated a strong sense of program ownership for assigned duties.

c. Conclusions

Personnel assigned to collect and process radiological environmental monitoring program samples were fully qualified to perform assigned tasks.

R6 Organization and Administration

a. Inspection Scope (84750)

The organization, staffing, and assignment of the radiological environmental monitoring program responsibilities were reviewed.

b. Observations and Findings

The organizational structure of the radiological environmental monitoring program has remained unchanged since the last inspection. From interviews with personnel involved with the program, the inspector determined that Chemistry/Environmental management provided appropriate support to implement an effective program.

c. Conclusions

The organization, staffing, and assignment of the radiological environmental monitoring program responsibilities were effectively implemented.

R7 Quality Assurance Program

R7.1 Radiological Environmental Monitoring Quality Assurance Program

a. Inspection Scope (84750)

The inspector reviewed quality assurance audits of the radiological environmental monitoring program.

b. Observations and Findings

In-house Audits

There was one quality assurance Radiological Environmental Monitoring Program/Offsite Dose Calculation Manual audit (298-051) performed since the last NRC inspection in July 1998. The audit team consisted of five members, two of whom were technical specialists from other nuclear power facilities. No problems were identified with the auditors' qualifications. Chemistry management was appropriately involved in the planning stages of the audit. The inspector determined that the audit was a comprehensive review of the program and provided management with a good assessment of the radiological environmental monitoring, Offsite Dose Calculation Manual, and meteorological programs.

The audit identified three findings and four recommendations to enhance to the above program areas. The inspector determined that, although important to improving the radiological environmental monitoring program, none of the findings were regulatory issues. All findings were properly documented in the station's corrective action program. All recommendations were closed in a timely manner. Quality assurance originated problem evaluation request reports were properly tracked by the quality assurance department to ensure corrective actions identified adequately addressed the issues.

Vendor Audits

No problems were noted during the review of the Nuclear Procurement Issues Committee Joint Vendor Audit of Teledyne Brown Enviro Services performed between August 31 and September 4, 1998. Teledyne Brown Enviro Services provides analytical services for all environmental samples with the exception of thermoluminescent dosimeter analysis. No findings were identified that adversely affected the services contracted.

On June 8, 1998, the station contracted Battelle Pacific Northwest Division to process environmental thermoluminescent dosimeters. However, as of January 13, 2000, an audit of Battelle Pacific Northwest Division had not been performed to verify the implementation and determine the effectiveness of Battelle's environmental thermoluminescent dosimeter quality assurance program.

Technical Specification 5.4.1.c requires that written procedures be established, implemented, and maintained, covering quality assurance program for environmental

monitoring. Section 3.10.2.1 of Site-Wide Procedure SWP-ASU-01, "Evaluations of Programs, Processes, and Suppliers," Revision 4, stated, that audits shall be planned to verify compliance with and evaluate the effectiveness of applicable aspects of the supplier quality assurance program. Attachment 7.1 of the above procedure stated that the radiological environmental monitoring program will be audited every 12 months. The inspector noted that effective October 20, 1999, the licensee changed the radiological environmental monitoring program audit frequency to a 24-month requirement.

From a review of Table 6.3.1.1.-1 of the Offsite Dose Calculation Manual, the inspector determined that direct radiation (thermoluminescent dosimeters) were listed as a radiological environmental monitoring program sample type. The failure to perform an audit of the above supplier's environmental thermoluminescent dosimeter quality assurance program is a violation of Technical Specification 5.4.1.c. This violation is more than minor because the licensee's quality assurance department failed to identify that thermoluminescent dosimeters were included as part of the radiological environmental monitoring program. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a.of the NRC Enforcement Policy. On January 13, 2000, the licensee wrote Problem Evaluation Request 200-0078 documenting this issue (50-397/0003-01).

c. Conclusions

An effective audit of the in-house portion of the radiological environmental monitoring program was performed by qualified auditors. Audit findings were properly documented and tracked in the station's corrective action program. A violation of Technical Specification 5.4.1.c was identified for the failure to audit a contract supplier's environmental thermoluminescent dosimeter quality assurance program which was part of the radiological environmental monitoring program. This Severity Level IV violation is being treated as a noncited violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. On January 13, 2000, the licensee wrote Problem Evaluation Request 200-0078 documenting this issue.

R7.2 Problem Evaluation Request Reports and Corrective Actions

a. Inspection Scope (84750)

Selected problem evaluation request reports were reviewed to evaluate the effectiveness of the licensee's controls in identifying, resolving, and preventing problems.

b. Observations and Findings

The inspector reviewed problem evaluation request reports relating to the radiological environmental monitoring and meteorological monitoring programs and determined that the station captured issues at the proper threshold to identify equipment and program problems. Overall, corrective actions were closed in a timely manner and proper to resolve repeat problems.

c. Conclusions

The station captured radiological environmental monitoring and meteorological monitoring program issues at the proper threshold to identify equipment and program problems.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting conducted on January 13, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Barber, Supervisor, Quality Services
S. Boynton, Manager, Quality
M. Collins, Supervisor, Quality Services
D. Coleman, Manager, Regulatory Affairs
J. Hanson, Manager, Chemistry
W. Kiel, Supervisor, Regulatory Services
T. Northstrom, Supervisor, Environmental Laboratory
C. McDonald, Supervisor, Training
J. McDonald, Environmental Scientist
G. Smith, Vice-President/Plant General Manager
R. Webring, Vice President, Operations Support
G. Wooley, Supervisor, Supply Quality

NRC

J. Rodriguez, Resident Inspector

INSPECTION PROCEDURE USED

IP 84750 Radioactive Waste Treatment and Effluent and Environmental Monitoring

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-397/0003-01	NCV	Failure to perform an audit of the radiological environmental monitoring program thermoluminescent dosimetry (Section R7.1).

LIST OF DOCUMENTS REVIEWED

Problem evaluation request reports relating to the radiological environmental monitoring and meteorological monitoring programs written since July 1998.

Quality Program Documentation

Quality Department Audit Report 298-051, "REMP, ODCM, and Radiological Effluent Monitoring"

NUPIC Joint Audit EO-2851, "Teledyne Brown Enviro Services"

EN-QA-004, "Operational Quality Assurance Program Description," Revision 32

SWP-ASU-01, "Evaluations of Programs, Processes, and Supplies," Revision 5

Procedures and Instructions

EALI 4.0, "Radiological Environmental Monitoring Program Records Control," Revision 0

EALI 4.12, "Airborne Samples Distribution, Collection, and Shipping," Revision 1

EALI 4.19, "Drinking, Discharge, and River Water Sample Collection," Revision 0

EALI 4.21, "Groundwater Collection," Revision 0

PPM 1.10.2, "Routine or Periodic Reports Required by Regulatory Agencies," Revision 12

PPM 1.11.1, "Radiological Environmental Monitoring Program," Revision 8

PPM 16.13.2, "Annual Radiological Environmental Operating Report," Revision 0

PPM 16.13.1, "Annual 5-Mile Land Use Census," Revision 1

Reports

1998 Annual Radiological Environment Operating Report

Sections 5.0 and 7.0 of the 1998 Radioactive Effluent Release Report

50-397
1/24/2000
00-02

Distribution Sheet

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 24, 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT NO. 50-397/2000-02

Dear Mr. Parrish:

This refers to the inspection conducted on January 10-13, 2000, at the Washington Nuclear Project-2 facility. The purpose of this inspection was to review your solid radioactive waste management program and radioactive waste/materials transportation program. The enclosed report presents the scope and results of that inspection.

We determined that your solid radioactive waste management and radioactive waste/materials transportation programs were properly controlled and implemented.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Gail M. Good, Chief
Plant Support Branch
Division Reactor Safety

Docket No.: 50-397
License No.: NPF-21

Enclosure:
NRC Inspection Report No.
50-397/2000-02

cc w/enclosure:
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E-Mail report to D. Lange (DJL)
E-Mail report to NRR Event Tracking System (IPAS)
E-Mail report to Document Control Desk (DOCDESK)

E-Mail notification of report issuance to the WNP SRI and Site Secretary (GDR, HIB).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE06) - Radiological Protection Reports

bcc distrib. by RIV:
Regional Administrator
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M.SHANNON	JBNicholas	GMGood	LJSmith		
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-397
License No.:	NPF-21
Report No.:	50-397/2000-02
Licensee:	Energy Northwest
Facility:	Washington Nuclear Project-2
Location:	Richland, Washington
Dates:	January 10-13, 2000
Inspector:	J. Blair Nicholas, Ph.D., Senior Health Physicist Plant Support Branch
Approved By:	Gail M. Good, Chief, Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Washington Nuclear Project-2
NRC Inspection Report No. 50-397/2000-02

This announced, routine inspection reviewed the implementation of the solid radioactive waste management and the radioactive waste/materials transportation programs. Training and qualifications, quality assurance oversight, facilities and equipment, procedural guidance, and annual reports were also reviewed.

Plant Support

- The solid radioactive waste management program was effectively implemented. Solid radioactive waste was properly classified and characterized for shipment and disposal. The volume and radioactivity of solid radioactive waste generated during the time period 1995 through 1999 showed a continuing decline; even though, during the same time period, the station's 3-year rolling averages of generated solid radioactive waste were greater than the industry median for boiling water reactor facilities. Solid radioactive waste generation goals for fiscal years 1997, 1998, and 1999 were met indicating the effective implementation of the solid radioactive waste minimization program. The transportation program for radioactive wastes and materials was effectively implemented. Documentation and packages were properly prepared for shipment (Sections R1.1 and R1.2).

- Facilities for the processing, storage, and management of solid radioactive wastes and the performance of transportation activities were properly maintained. The radioactive waste processing and storage areas were clean and free of debris. An effective radioactive waste inventory/accountability system was maintained. Personnel dose received from performance of solid radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 as a result of less solid radioactive waste generated and improved ALARA processing practices (Section R2).

- Procedures established to implement the solid radioactive waste management and transportation programs provided detailed guidance for the handling, processing, and shipping of radioactive waste/materials (Section R3).

- The training and qualification programs for chemistry and radiation protection personnel involved with the processing, packaging, and shipping of radioactive waste/materials were properly conducted in accordance with regulatory requirements. Chemistry and radiation protection radwaste personnel were properly trained and qualified (Section R5).

- Problem evaluation requests showed no adverse programmatic trends. There was appropriate evaluation of the contractors' performance (Section R7).

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Solid Radioactive Waste Management

a. Inspection Scope (86750)

The inspector interviewed personnel assigned to implement the solid radioactive waste management program, including the chemical technical supervisor, radwaste technical reviewer, and radioactive shipment coordinator. The following solid radioactive waste program activities were reviewed:

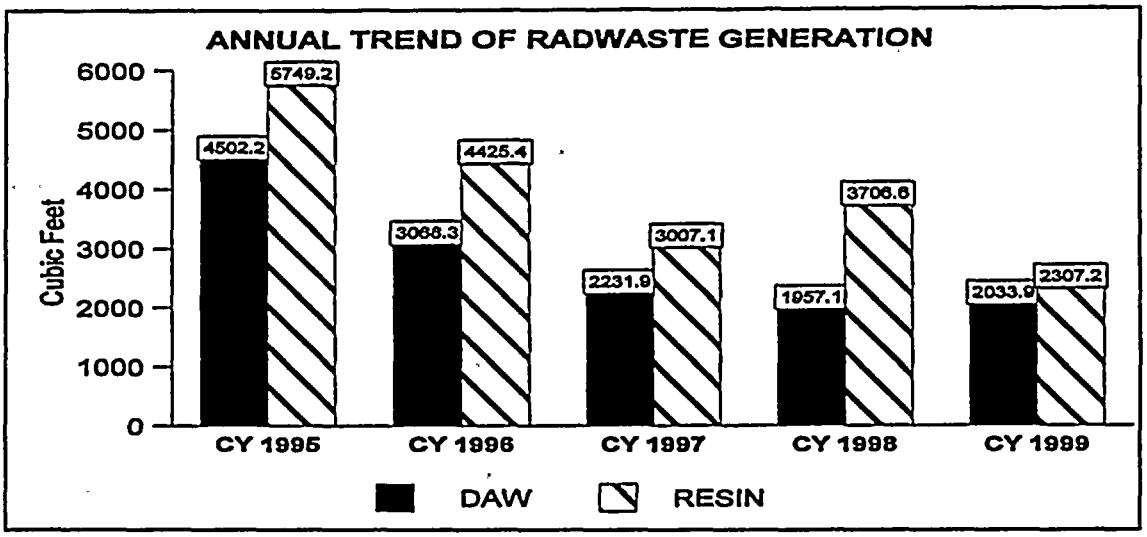
- Waste stream sampling results and waste characterization documentation
- Scaling factors
- Solid radioactive waste classification
- Quantities of radioactive waste shipped for disposal
- Waste minimization program
- Annual radioactive waste effluent release reports

b. Observations and Findings

The inspector verified that waste stream samples were taken annually and analyzed to meet 10 CFR Part 61 requirements for waste classification and characterization. Five waste streams were identified that consisted of dry active waste, resins, and filters. The waste stream samples were analyzed by a contractor laboratory. Based on the annual waste stream sample analysis results, new scaling factors were calculated and updated annually in the radwaste computer code data base for each waste stream and used in the radioactive waste calculations for radioactive waste characterization.

The inspector noted that the licensee had reduced the amount of solid radioactive waste generated during the past 5 years. Radworker awareness to minimize radioactive waste when performing their assigned tasks was emphasized during general employee training. Licensee data trends showed that the radioactive waste minimization efforts were effective.

The volume of solid radioactive dry active waste and resins generated were tracked by the licensee. A summary of the volume of solid radioactive dry active waste and resins generated during the time period 1995 through 1999 is presented in the graph below. For 1995 through 1999, the licensee's data showed a continuing decline in solid radioactive waste generated. The licensee met the dry active waste generation goals established for fiscal years 1997, 1998, and 1999. However, a comparison of the licensee's 3-year average amounts of solid radioactive waste generated for the periods 1995 through 1997, 1996 through 1998, and 1997 through 1999 to the industry's 3-year median values for the respective time periods showed that the licensee generated more solid radioactive waste than the industry's 3-year median values for boiling water reactors over the past 5 years.



The annual radioactive effluent release reports contained the required solid radioactive waste data. Dry active waste was shipped to an off-site contractor for volume reduction and subsequent burial. A summary of the volume and activity of solid radioactive waste including resins, irradiated components, and dry active waste shipped for volume reduction and subsequent disposal and/or directly for burial during the last 5 years is tabulated below.

Year	Number Of Shipments	Total Volume (m^3)	Total Activity (Ci)
1995	62	276	1001
1996	48	223	575
1997	30	145	481
1998	33	173	89
1999	24	118	325

c. Conclusions

The solid radioactive waste management program was effectively implemented. Solid radioactive waste was properly classified and characterized for shipment and disposal. The volume and radioactivity of solid radioactive waste generated during the time period 1995 through 1999 showed a continuing decline; even though, during the same time period, the station's 3-year rolling averages of generated solid radioactive waste were

greater than the industry median for boiling water reactor facilities. Solid radioactive waste generation goals for fiscal years 1997, 1998, and 1999 were met indicating the effective implementation of the solid radioactive waste minimization program.

R1.2 Transportation of Radioactive Waste and Radioactive Materials

a. Inspection Scope (86750)

The inspector reviewed the following items:

- Shipping documentation for selected radioactive materials/waste shipments
- Certificates of compliance for NRC-certified shipping casks
- Copies of licenses for recipients of radioactive materials/wastes
- Packaging and shipping papers
- Marking and labeling of packages for shipment
- Vehicle placarding and driver instructions
- Emergency response information
- Radiation surveys of packages and vehicles

b. Observations and Findings

Selected shipping records for shipments performed between January 1998 and December 1999 were reviewed. Shipments requiring Type B packaging were made by the licensee. The inspector verified that Certificates of Compliance for routinely used Type B shipping casks were current and that the licensee was a registered user for the NRC-certified shipping casks used. State shipping permits were verified to be current. The inspector verified that the licensee maintained on file current copies of consignees' radioactive material licenses.

No shipments of radioactive materials or radioactive wastes were made during the week of the inspection; therefore, no observations of actual shipment preparation were possible. The inspector observed the transfer of condensate spent resin from the condensate phase separator tank to a metal liner in preparation for shipment and burial. The resin transfer evolution was performed according to procedure, and good ALARA practices were observed.

A quality controlled vendor supplied radioactive waste computer program was used by the licensee to determine proper radioactive material transportation categories, shipping packages, labeling, and shipment documentation. Shipping papers for radioactive material shipments contained the information required by 49 CFR Part 172, Subpart C. In addition to this information, radioactive waste shipment documentation included manifests that conformed to the requirements of 10 CFR Part 20, Appendix G, and 49 CFR 173.433. Shipping documents included radioactivity measurements recorded in system international units as well as customary units. The inspector verified that proper emergency telephone numbers were included with the shipping papers. Radiation survey records documented that radiation and contamination levels of shipments were within regulatory limits.

c. Conclusions

The transportation program for radioactive wastes and materials was effectively implemented. Documentation and packages were properly prepared for shipment.

R2 Status of Facilities and Equipment

a. Inspection Scope (86750)

The inspector toured the solid radioactive waste processing facilities in the radwaste building and inspected radioactive waste container storage and accountability.

b. Findings and Observations

Inspection of the radioactive waste processing and storage facilities revealed that the radioactive waste facilities were well maintained. The radioactive waste processing and storage areas were properly posted and controlled. Radioactive waste containers were properly labeled and marked. Housekeeping in the radioactive waste processing and storage areas was good and free of debris.

Shipments of radioactive wastes were made in a timely manner to maintain the radioactive waste inventory at a minimum. The licensee kept accurate records of radioactive waste container accountability. The inspector verified that selected radioactive waste containers were stored as documented. The inspector concluded that the licensee could account for all of the radioactive waste inventory.

The inspector reviewed the personnel dose records complied from radiation work permits used to process and ship radioactive waste. The personnel dose received from the performance of radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 from 2.8 rem to 1.5 rem. This was attributed to less solid radioactive waste generated and better ALARA practices developed to process the waste.

c. Conclusions

Facilities for the processing, storage, and management of solid radioactive wastes and the performance of transportation activities were properly maintained. The radioactive waste processing and storage areas were clean and free of debris. An effective radioactive waste inventory/accountability system was maintained. Personnel dose received from performance of solid radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 as a result of less solid radioactive waste generated and improved ALARA processing practices.

R3 Radiological Protection and Chemistry Procedures and Documentation

The inspector reviewed the solid radioactive waste management and transportation programs implementing procedures and determined that they provided detailed guidance for radioactive waste stream sampling and analyses. The health physics radwaste procedures also provided excellent step-by-step guidance for the preparation and shipment of radioactive waste and materials.

R4 Staff Knowledge and Performance

The inspector interviewed the chemical technical supervisor, radwaste technical reviewer, and radioactive shipment coordinator, who were responsible for the implementation of the solid radioactive waste management program and performance of radioactive waste/materials shipping activities. The radwaste technical reviewer and radioactive shipment coordinator were experienced and had an excellent working knowledge of the transportation regulations.

R5 Staff Training and Qualification in Radiological Protection and Chemistry

a. Inspection Scope (86750)

The inspector reviewed the training and qualification requirements of personnel responsible for the preparation and packaging of radioactive waste and radioactive materials for shipment. The inspector reviewed the following items:

- Training materials related to 49 CFR Parts 171-179 and 10 CFR Part 71
- Personnel training and qualification records

b. Observations and Findings

The inspector verified that personnel training records documented that the chemistry department's staff and radiation protection technicians assigned to implement the solid radioactive waste processing and transportation activities were properly trained and qualified.

The training program was conducted in accordance with commitments made in the licensee's response to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial." Training records indicated that the chemistry department's chemical technical supervisor, radwaste technical reviewer, radioactive shipment coordinator, radioactive material control supervisor, and radwaste technical staff had received the required triennial training in radioactive waste processing and transportation regulatory requirements. The training department's program descriptions, lesson plans, and vendor supplied course materials provided a comprehensive training program.

c. Conclusions

The training and qualification programs for chemistry and radiation protection personnel involved with the processing, packaging, and shipping of radioactive waste/materials were properly conducted in accordance with regulatory requirements. Chemistry and radiation protection radwaste personnel were properly trained and qualified.

R6 Radiological Protection and Chemistry Organization and Administration

The chemistry and radiation protection departments' organization and staffing for the implementation of the solid radioactive waste management and transportation programs were reviewed. The chemical technical supervisor assisted by the radwaste technical reviewer, radioactive shipment coordinator, radioactive waste chemistry specialist, radioactive material control supervisor, and radiation protection radwaste technicians effectively impiemented the radioactive waste management and transportation programs. There had been no changes in the personnel implementing the solid radioactive waste management and transportation programs since the previous NRC inspection of this area conducted in June 1998.

R7 Quality Assurance in Radiological Protection and Chemistry Activities

R7.1 Solid Radioactive Waste and Transportation Program Assessments

a. Inspection Scope (86750)

The following area was reviewed to evaluate the licensee's effectiveness at identifying and correcting problems:

- Problem evaluation requests of radioactive waste and transportation activities

b. Observations and Findings

A biennial audit of the solid radioactive waste management and radioactive waste/materials transportation programs was not performed since the previous NRC inspection conducted in June 1998. The next biennial audit of the process control program was scheduled for February 2000. Therefore, no quality assurance audit was reviewed during this inspection period.

Based on the review of the problem evaluation requests involving solid radioactive waste activities written during 1998 and 1999, no adverse programmatic trends were noted.

c. Conclusions

Problem evaluation requests showed no adverse programmatic trends.

R7.2 Quality Evaluation Program of Contractors

a. Inspection Scope (86750)

The supplier quality assurance audit program of contractors performing solid radioactive waste management program support activities was reviewed.

b. Observations and Findings

Contractors were used to perform the processing of solid radioactive waste processing and volume reduction, radioactive waste transportation and cask rental, radioactive waste disposal services, and radiochemistry analyses of radioactive waste samples for 10 CFR Part 61 waste classification and characterization requirements.

Nuclear procurement issues committee and third party audits of the contractors were used to evaluate the performance of the respective radioactive waste activities. The audits were comprehensive and satisfactory to evaluate each of the contractor's abilities to perform the respective radioactive waste program activities.

c. Conclusion

The contractors' performance was appropriately evaluated.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on January 13, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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J. Peters, Manager, Radiological Services
T. Powell, Licensing Engineer, Regulatory Affairs
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J. Tarr, Radwaste Technician, Radiation Protection
R. Webring, Vice President, Operations Support
D. Welker, Training Specialist, Health Physics/Chemistry/ General Employee Training
G. Wooley, Supervisor, Supplier Quality

NRC

J. Rodriguez, Resident Inspector

LIST OF INSPECTION PROCEDURES USED

IP 86750	Solid Waste Management and Transportation of Radioactive Waste

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Chemistry Department

Radiation Protection Department

TRAINING DOCUMENTATION

Vendor Training Course	"Use of WMG Programs and Regulatory Compliance," presented March 5-7, 1997
Training Course Description RW000087	"Packaging and Transportation of Radioactive Waste and Material," Revision 3
Lesson Plan HZ000018	"49 CFR - Hazardous Materials Transportation Awareness," Revision 0
Lesson Plan RW000103	"Waste Characterizing Computer Code Training," Revision 0
Lesson Plan RW000113	"Class B Commercial Drivers License with Hazmat Endorsement," Revision 0
Lesson Plan RW000114	"Radioactive Waste Material Transport Preparation Certification," Revision 0
Lesson Plan RW000115	"WNP-2 Radwaste Procedures," Revision 0
Lesson Plan RW000116	"NRC Packaging and Shipping Regulations," Revision 0
Lesson Plan RW000117	"DOT Packaging and Shipping Regulations," Revision 0
Lesson Plan RW000118	"Burial Site Disposal Requirements Training," Revision 0

Chemistry department training records

Radiation protection department training records

QUALITY ASSURANCE DOCUMENTS

Quality 1998 Audit Schedule, Revision 1

Quality 1999/2000 Audit Schedule, Revision 3

Site-Wide Procedure SWP-ASU-01, "Evaluations of Programs, Processes, and Suppliers," Revision 5

Quality Assurance Procedure QAP-2, "Planning, Scheduling, and Conducting Evaluations," Revision 8

Operational Quality Assurance Program Description, Appendix III, Section 2.2.8, Revision 4

Quality Assurance Program Approval for Radioactive Material Packages, expiration date November 30, 2002

Vendor Audits

Portland General Electric Quality Assurance Supplier Audit of Interstate Nuclear Services, conducted May 6-7, 1997

NUPIC Joint Quality Assurance Audit of Teledyne Brown Engineering-Environmental Services, conducted August 31 through September 4, 1998

Portland General Electric Quality Assurance Supplier Audit of Allied Technology Group, conducted August 26-27, 1997

PROCEDURES

Station-Wide Procedures

SWP-RMP-01	"Radioactive Waste Management Program," Revision 0
SWP-RMP-02	"Radioactive Waste Process Control Program," Revision 0

Health Physics Procedures

11.2.23.1	"Shipping Radioactive Materials and Waste," Revision 1
11.1.23.2	"Computerized Radioactive Waste and Material Characterization," Revision 15
11.2.23.3	"Manual Radioactive Waste and Material Characterization," Revision 11
11.2.23.4	"Preparing Radioactive Waste and Materials Packages," Revision 17
11.2.23.14	"Sampling of Radioactive Waste Streams," Revision 9
11.2.23.19	"Operation of the Pacific Nuclear Resin Drying System," Revision 7
11.2.23.20	"Use of the NUPAC Services Transport Cask Model 14/210L or 14/210H," Revision 9
11.2.23.21	"Use of the NUPAC Services Transport Cask Model 10/142," Revision 11
11.2.23.28	"Transferring Possession of Radioactive Material to Another Entity," Revision 4
11.2.23.29	"LSA Contaminated Laundry Shipments," Revision 5
11.2.23.35	"Use of the NUPAC Services Transport Cask Model 14/190L, 14/190M, or 14/190H," Revision 2

MISCELLANEOUS DOCUMENTS

Annual Operating Radioactive Effluent Reports - 1997 and 1998

Selected Problem Evaluation Reports

50-397
1/24/00
00-02

Distribution Sheet

Priority: Normal

From: Elaine Walker

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 24, 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: NRC INSPECTION REPORT NO. 50-397/2000-02

Dear Mr. Parrish:

This refers to the inspection conducted on January 10-13, 2000, at the Washington Nuclear Project-2 facility. The purpose of this inspection was to review your solid radioactive waste management program and radioactive waste/materials transportation program. The enclosed report presents the scope and results of that inspection.

We determined that your solid radioactive waste management and radioactive waste/materials transportation programs were properly controlled and implemented.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

Gail M. Good, Chief
Plant Support Branch
Division Reactor Safety

Docket No.: 50-397
License No.: NPF-21

Enclosure:
NRC Inspection Report No.
50-397/2000-02

cc w/enclosure:
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Office of the Governor
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E-Mail report to D. Lange (DJL)
E-Mail report to NRR Event Tracking System (IPAS)
E-Mail report to Document Control Desk (DOCDESK)

E-Mail notification of report issuance to the WNP SRI and Site Secretary (GDR, HIB).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE06) - Radiological Protection Reports

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-397
License No.:	NPF-21
Report No.:	50-397/2000-02
Licensee:	Energy Northwest
Facility:	Washington Nuclear Project-2
Location:	Richland, Washington
Dates:	January 10-13, 2000
Inspector:	J. Blair Nicholas, Ph.D., Senior Health Physicist Plant Support Branch
Approved By:	Gail M. Good, Chief, Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Washington Nuclear Project-2
NRC Inspection Report No. 50-397/2000-02

This announced, routine inspection reviewed the implementation of the solid radioactive waste management and the radioactive waste/materials transportation programs. Training and qualifications, quality assurance oversight, facilities and equipment, procedural guidance, and annual reports were also reviewed.

Plant Support

- The solid radioactive waste management program was effectively implemented. Solid radioactive waste was properly classified and characterized for shipment and disposal. The volume and radioactivity of solid radioactive waste generated during the time period 1995 through 1999 showed a continuing decline; even though, during the same time period, the station's 3-year rolling averages of generated solid radioactive waste were greater than the industry median for boiling water reactor facilities. Solid radioactive waste generation goals for fiscal years 1997, 1998, and 1999 were met indicating the effective implementation of the solid radioactive waste minimization program. The transportation program for radioactive wastes and materials was effectively implemented. Documentation and packages were properly prepared for shipment (Sections R1.1 and R1.2).

- Facilities for the processing, storage, and management of solid radioactive wastes and the performance of transportation activities were properly maintained. The radioactive waste processing and storage areas were clean and free of debris. An effective radioactive waste inventory/accountability system was maintained. Personnel dose received from performance of solid radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 as a result of less solid radioactive waste generated and improved ALARA processing practices (Section R2).

- Procedures established to implement the solid radioactive waste management and transportation programs provided detailed guidance for the handling, processing, and shipping of radioactive waste/materials (Section R3).

- The training and qualification programs for chemistry and radiation protection personnel involved with the processing, packaging, and shipping of radioactive waste/materials were properly conducted in accordance with regulatory requirements. Chemistry and radiation protection radwaste personnel were properly trained and qualified (Section R5).

- Problem evaluation requests showed no adverse programmatic trends. There was appropriate evaluation of the contractors' performance (Section R7).

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Solid Radioactive Waste Management

a. Inspection Scope (86750)

The inspector interviewed personnel assigned to implement the solid radioactive waste management program, including the chemical technical supervisor, radwaste technical reviewer, and radioactive shipment coordinator. The following solid radioactive waste program activities were reviewed:

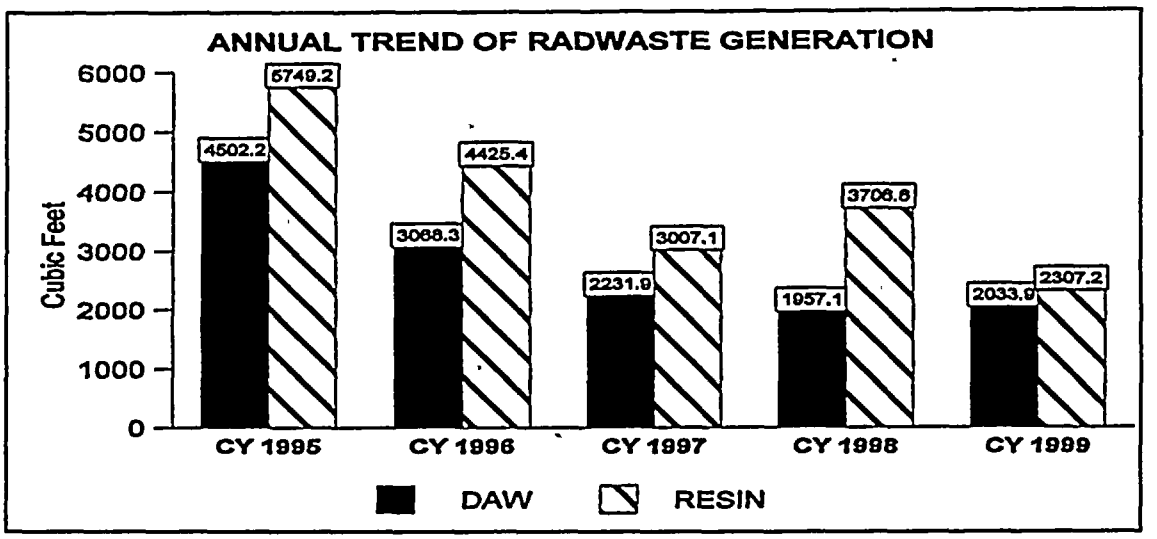
- Waste stream sampling results and waste characterization documentation
- Scaling factors
- Solid radioactive waste classification
- Quantities of radioactive waste shipped for disposal
- Waste minimization program
- Annual radioactive waste effluent release reports

b. Observations and Findings

The inspector verified that waste stream samples were taken annually and analyzed to meet 10 CFR Part 61 requirements for waste classification and characterization. Five waste streams were identified that consisted of dry active waste, resins, and filters. The waste stream samples were analyzed by a contractor laboratory. Based on the annual waste stream sample analysis results, new scaling factors were calculated and updated annually in the radwaste computer code data base for each waste stream and used in the radioactive waste calculations for radioactive waste characterization.

The inspector noted that the licensee had reduced the amount of solid radioactive waste generated during the past 5 years. Radworker awareness to minimize radioactive waste when performing their assigned tasks was emphasized during general employee training. Licensee data trends showed that the radioactive waste minimization efforts were effective.

The volume of solid radioactive dry active waste and resins generated were tracked by the licensee. A summary of the volume of solid radioactive dry active waste and resins generated during the time period 1995 through 1999 is presented in the graph below. For 1995 through 1999, the licensee's data showed a continuing decline in solid radioactive waste generated. The licensee met the dry active waste generation goals established for fiscal years 1997, 1998, and 1999. However, a comparison of the licensee's 3-year average amounts of solid radioactive waste generated for the periods 1995 through 1997, 1996 through 1998, and 1997 through 1999 to the industry's 3-year median values for the respective time periods showed that the licensee generated more solid radioactive waste than the industry's 3-year median values for boiling water reactors over the past 5 years.



The annual radioactive effluent release reports contained the required solid radioactive waste data. Dry active waste was shipped to an off-site contractor for volume reduction and subsequent burial. A summary of the volume and activity of solid radioactive waste including resins, irradiated components, and dry active waste shipped for volume reduction and subsequent disposal and/or directly for burial during the last 5 years is tabulated below.

Year	Number Of Shipments	Total Volume (m^3)	Total Activity (Ci)
1995	62	276	1001
1996	48	223	575
1997	30	145	481
1998	33	173	89
1999	24	118	325

c. Conclusions

The solid radioactive waste management program was effectively implemented. Solid radioactive waste was properly classified and characterized for shipment and disposal. The volume and radioactivity of solid radioactive waste generated during the time period 1995 through 1999 showed a continuing decline; even though, during the same time period, the station's 3-year rolling averages of generated solid radioactive waste were

greater than the industry median for boiling water reactor facilities. Solid radioactive waste generation goals for fiscal years 1997, 1998, and 1999 were met indicating the effective implementation of the solid radioactive waste minimization program.

R1.2 Transportation of Radioactive Waste and Radioactive Materials

a. Inspection Scope (86750)

The inspector reviewed the following items:

- Shipping documentation for selected radioactive materials/waste shipments
- Certificates of compliance for NRC-certified shipping casks
- Copies of licenses for recipients of radioactive materials/wastes
- Packaging and shipping papers
- Marking and labeling of packages for shipment
- Vehicle placarding and driver instructions
- Emergency response information
- Radiation surveys of packages and vehicles

b. Observations and Findings

Selected shipping records for shipments performed between January 1998 and December 1999 were reviewed. Shipments requiring Type B packaging were made by the licensee. The inspector verified that Certificates of Compliance for routinely used Type B shipping casks were current and that the licensee was a registered user for the NRC-certified shipping casks used. State shipping permits were verified to be current. The inspector verified that the licensee maintained on file current copies of consignees' radioactive material licenses.

No shipments of radioactive materials or radioactive wastes were made during the week of the inspection; therefore, no observations of actual shipment preparation were possible. The inspector observed the transfer of condensate spent resin from the condensate phase separator tank to a metal liner in preparation for shipment and burial. The resin transfer evolution was performed according to procedure, and good ALARA practices were observed.

A quality controlled vendor supplied radioactive waste computer program was used by the licensee to determine proper radioactive material transportation categories, shipping packages, labeling, and shipment documentation. Shipping papers for radioactive material shipments contained the information required by 49 CFR Part 172, Subpart C. In addition to this information, radioactive waste shipment documentation included manifests that conformed to the requirements of 10 CFR Part 20, Appendix G, and 49 CFR 173.433. Shipping documents included radioactivity measurements recorded in system international units as well as customary units. The inspector verified that proper emergency telephone numbers were included with the shipping papers. Radiation survey records documented that radiation and contamination levels of shipments were within regulatory limits.

c. Conclusions

The transportation program for radioactive wastes and materials was effectively implemented. Documentation and packages were properly prepared for shipment.

R2 Status of Facilities and Equipment

a. Inspection Scope (86750)

The inspector toured the solid radioactive waste processing facilities in the radwaste building and inspected radioactive waste container storage and accountability.

b. Findings and Observations

Inspection of the radioactive waste processing and storage facilities revealed that the radioactive waste facilities were well maintained. The radioactive waste processing and storage areas were properly posted and controlled. Radioactive waste containers were properly labeled and marked. Housekeeping in the radioactive waste processing and storage areas was good and free of debris.

Shipments of radioactive wastes were made in a timely manner to maintain the radioactive waste inventory at a minimum. The licensee kept accurate records of radioactive waste container accountability. The inspector verified that selected radioactive waste containers were stored as documented. The inspector concluded that the licensee could account for all of the radioactive waste inventory.

The inspector reviewed the personnel dose records complied from radiation work permits used to process and ship radioactive waste. The personnel dose received from the performance of radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 from 2.8 rem to 1.5 rem. This was attributed to less solid radioactive waste generated and better ALARA practices developed to process the waste.

c. Conclusions

Facilities for the processing, storage, and management of solid radioactive wastes and the performance of transportation activities were properly maintained. The radioactive waste processing and storage areas were clean and free of debris. An effective radioactive waste inventory/accountability system was maintained. Personnel dose received from performance of solid radioactive waste activities showed an approximate 47 percent decrease between 1994 and 1999 as a result of less solid radioactive waste generated and improved ALARA processing practices.

R3 Radiological Protection and Chemistry Procedures and Documentation

The inspector reviewed the solid radioactive waste management and transportation programs implementing procedures and determined that they provided detailed guidance for radioactive waste stream sampling and analyses. The health physics radwaste procedures also provided excellent step-by-step guidance for the preparation and shipment of radioactive waste and materials.

R4 Staff Knowledge and Performance

The inspector interviewed the chemical technical supervisor, radwaste technical reviewer, and radioactive shipment coordinator, who were responsible for the implementation of the solid radioactive waste management program and performance of radioactive waste/materials shipping activities. The radwaste technical reviewer and radioactive shipment coordinator were experienced and had an excellent working knowledge of the transportation regulations.

R5 Staff Training and Qualification in Radiological Protection and Chemistry

a. Inspection Scope (86750)

The inspector reviewed the training and qualification requirements of personnel responsible for the preparation and packaging of radioactive waste and radioactive materials for shipment. The inspector reviewed the following items:

- Training materials related to 49 CFR Parts 171-179 and 10 CFR Part 71
- Personnel training and qualification records

b. Observations and Findings

The inspector verified that personnel training records documented that the chemistry department's staff and radiation protection technicians assigned to implement the solid radioactive waste processing and transportation activities were properly trained and qualified.

The training program was conducted in accordance with commitments made in the licensee's response to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial." Training records indicated that the chemistry department's chemical technical supervisor, radwaste technical reviewer, radioactive shipment coordinator, radioactive material control supervisor, and radwaste technical staff had received the required triennial training in radioactive waste processing and transportation regulatory requirements. The training department's program descriptions, lesson plans, and vendor supplied course materials provided a comprehensive training program.

c. Conclusions

The training and qualification programs for chemistry and radiation protection personnel involved with the processing, packaging, and shipping of radioactive waste/materials were properly conducted in accordance with regulatory requirements. Chemistry and radiation protection radwaste personnel were properly trained and qualified.

R6 Radiological Protection and Chemistry Organization and Administration

The chemistry and radiation protection departments' organization and staffing for the implementation of the solid radioactive waste management and transportation programs were reviewed. The chemical technical supervisor assisted by the radwaste technical reviewer, radioactive shipment coordinator, radioactive waste chemistry specialist, radioactive material control supervisor, and radiation protection radwaste technicians effectively impiemented the radioactive waste management and transportation programs. There had been no changes in the personnel implementing the solid radioactive waste management and transportation programs since the previous NRC inspection of this area conducted in June 1998.

R7 Quality Assurance in Radiological Protection and Chemistry Activities

R7.1 Solid Radioactive Waste and Transportation Program Assessments

a. Inspection Scope (86750)

The following area was reviewed to evaluate the licensee's effectiveness at identifying and correcting problems:

- Problem evaluation requests of radioactive waste and transportation activities

b. Observations and Findings

A biennial audit of the solid radioactive waste management and radioactive waste/materials transportation programs was not performed since the previous NRC inspection conducted in June 1998. The next biennial audit of the process control program was scheduled for February 2000. Therefore, no quality assurance audit was reviewed during this inspection period.

Based on the review of the problem evaluation requests involving solid radioactive waste activities written during 1998 and 1999, no adverse programmatic trends were noted.

c. Conclusions

Problem evaluation requests showed no adverse programmatic trends.

R7.2 Quality Evaluation Program of Contractors

a. Inspection Scope (86750)

The supplier quality assurance audit program of contractors performing solid radioactive waste management program support activities was reviewed.

b. Observations and Findings

Contractors were used to perform the processing of solid radioactive waste processing and volume reduction, radioactive waste transportation and cask rental, radioactive waste disposal services, and radiochemistry analyses of radioactive waste samples for 10 CFR Part 61 waste classification and characterization requirements.

Nuclear procurement issues committee and third party audits of the contractors were used to evaluate the performance of the respective radioactive waste activities. The audits were comprehensive and satisfactory to evaluate each of the contractor's abilities to perform the respective radioactive waste program activities.

c. Conclusion

The contractors' performance was appropriately evaluated.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on January 13, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Allen, Radwaste Principal Health Physicist and Technical Reviewer, Chemistry Department
A. Barber, Quality Services Supervisor, Quality
D. Bennett, Chemical Technical Supervisor, Chemistry Department
S. Boynton, Manager, Quality
D. Coleman, Manager, Regulatory Affairs
J. Hanson, Manager, Chemistry Department
W. Kiel, Supervisor, Regulatory Affairs
W. Oxenford, Manager, Operations
C. McDonald, Supervisor, Health Physics/Chemistry/ General Employee Training
J. Peters, Manager, Radiological Services
T. Powell, Licensing Engineer, Regulatory Affairs
M. Price, Manager, Project Development
R. Schott, Radioactive Shipment Coordinator, Chemistry Department
G. Smith, Vice President, Plant General Manager
J. Tarr, Radwaste Technician, Radiation Protection
R. Webring, Vice President, Operations Support
D. Welker, Training Specialist, Health Physics/Chemistry/ General Employee Training
G. Wooley, Supervisor, Supplier Quality

NRC

J. Rodriguez, Resident Inspector

LIST OF INSPECTION PROCEDURES USED

IP 86750	Solid Waste Management and Transportation of Radioactive Waste

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Chemistry Department

Radiation Protection Department

TRAINING DOCUMENTATION

Vendor Training Course	"Use of WMG Programs and Regulatory Compliance," presented March 5-7, 1997
Training Course Description RW000087	"Packaging and Transportation of Radioactive Waste and Material," Revision 3
Lesson Plan HZ000018	"49 CFR - Hazardous Materials Transportation Awareness," Revision 0
Lesson Plan RW000103	"Waste Characterizing Computer Code Training," Revision 0
Lesson Plan RW000113	"Class B Commercial Drivers License with Hazmat Endorsement," Revision 0
Lesson Plan RW000114	"Radioactive Waste Material Transport Preparation Certification," Revision 0
Lesson Plan RW000115	"WNP-2 Radwaste Procedures," Revision 0
Lesson Plan RW000116	"NRC Packaging and Shipping Regulations," Revision 0
Lesson Plan RW000117	"DOT Packaging and Shipping Regulations," Revision 0
Lesson Plan RW000118	"Burial Site Disposal Requirements Training," Revision 0

Chemistry department training records

Radiation protection department training records

QUALITY ASSURANCE DOCUMENTS

Quality 1998 Audit Schedule, Revision 1

Quality 1999/2000 Audit Schedule, Revision 3

Site-Wide Procedure SWP-ASU-01, "Evaluations of Programs, Processes, and Suppliers," Revision 5

Quality Assurance Procedure QAP-2, "Planning, Scheduling, and Conducting Evaluations," Revision 8

Operational Quality Assurance Program Description, Appendix III, Section 2.2.8, Revision 4

Quality Assurance Program Approval for Radioactive Material Packages, expiration date November 30, 2002

Vendor Audits

Portland General Electric Quality Assurance Supplier Audit of Interstate Nuclear Services, conducted May 6-7, 1997

NUPIC Joint Quality Assurance Audit of Teledyne Brown Engineering-Environmental Services, conducted August 31 through September 4, 1998

Portland General Electric Quality Assurance Supplier Audit of Allied Technology Group, conducted August 26-27, 1997

PROCEDURES

Station-Wide Procedures

SWP-RMP-01	"Radioactive Waste Management Program," Revision 0
SWP-RMP-02	"Radioactive Waste Process Control Program," Revision 0

Health Physics Procedures

11.2.23.1	"Shipping Radioactive Materials and Waste," Revision 1
11.1.23.2	"Computerized Radioactive Waste and Material Characterization," Revision 15
11.2.23.3	"Manual Radioactive Waste and Material Characterization," Revision 11
11.2.23.4	"Preparing Radioactive Waste and Materials Packages," Revision 17
11.2.23.14	"Sampling of Radioactive Waste Streams," Revision 9
11.2.23.19	"Operation of the Pacific Nuclear Resin Drying System," Revision 7
11.2.23.20	"Use of the NUPAC Services Transport Cask Model 14/210L or 14/210H," Revision 9
11.2.23.21	"Use of the NUPAC Services Transport Cask Model 10/142," Revision 11
11.2.23.28	"Transferring Possession of Radioactive Material to Another Entity," Revision 4
11.2.23.29	"LSA Contaminated Laundry Shipments," Revision 5
11.2.23.35	"Use of the NUPAC Services Transport Cask Model 14/190L, 14/190M, or 14/190H," Revision 2

MISCELLANEOUS DOCUMENTS

Annual Operating Radioactive Effluent Reports - 1997 and 1998

Selected Problem Evaluation Reports