U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report 50-344/91-02

License NPF-1

Licensee: Portland General Electric Company
121 SW Salmon Street
Portland, Oregon 92704

Facility: Trojan Plant

Inspection location: Rainier, Oregon

Inspection duration: January 7-11, 1991

Inspected by: GP Yuhas for 1/28/91
L. L. Coblentz, Radiation Specialist — Date Signed

Approved by: GP Yuhas 1/28/91
G. P. Yuhas, Chief — Date Signed
Reactor Radiological Protection Branch

Summary:

Areas Inspected: Routine, unannounced inspection of followup items, followup of items of noncompliance, radioactive waste management, and transportation activities. Inspection procedures 92701, 92702, 86721, 84850, and 86750 were used.

Results: The licensee's programs for managing radioactive waste systems exhibited weaknesses in several areas. Two violations were identified: (1) for failure to update the Final Safety Analysis Report to reflect current radwaste systems and processing methods (Section 4); and (2) for storage of low-level radioactive waste outside the protected area in unlabeled containers (Section 4). In addition, three non-cited violations were identified: (1) for failure to remove or deface radioactive material labels prior to disposal of empty uncontaminated bags to unrestricted areas (Section 4); (2) for failure to perform evaluations of major changes to radioactive waste systems as required by Technical Specification 6.16 (Section 4); and (3) for failure to follow procedures for contamination control and airborne radioactivity monitoring during transfer of spent resin to a shipping container (Section 4). Finally, a weakness was identified in failure to document and correct conditions adverse to quality in the solid radwaste system (Section 4).

DETAILS

1. Persons Contacted

Licensee

S. Bauer, Branch Manager, Nuclear Regulations
M. Cooksey, Supervisor, Electrical Maintenance
J. Cross, Vice President, Nuclear
M. Hoffman, Manager, Nuclear Safety and Regulation
J. Lentsch, Manager, Personnel Protection
T. Meek, Radiation Protection Oversight
W. Nicholson, Manager, Operations
L. Nolan, Unit Supervisor, Radwaste
W. Peabody, Manager, Nuclear Plant Engineering
J. Reid, Branch Manager, Quality Services
G. Rich, Branch Manager, Radiation Protection
W. Robinson, Plant General Manager
C. Seaman, General Manager, Nuclear Quality Assurance
M. Singh, Manager, Plant Modifications
J. Vingerud, Unit Supervisor, Electrical Maintenance
T. Walt, General Manager, Technical Functions
J. Whelan, Manager, Maintenance
D. Williams, Engineer, Bonneville Power Authority
W. Williams, Regulatory Compliance
G. Zimmerman, Branch Manager, Radiological Safety

USNRC

R. Barr, Senior Resident Inspector
J. Melfi, Resident Inspector

Oregon Department of Energy

A. Bless, Resident Inspector

The individuals listed above attended the exit meeting on January 11, 1991. The inspector met and held discussions with additional members of the licensee's staff during the inspection.

2. Followup (92701)

Item 50-344/89-30-03 (Closed): This item concerned the need for evaluation of unmonitored leakage to the environment through the 54" purge valves when Process and Effluent Monitor PRM-1 is aligned to monitor containment atmosphere. The licensee had performed an evaluation of changes in leakrate at lower differential pressure, and calculated the magnitude of possible unmonitored releases through this pathway. Using worst-case conditions, the calculations established that such leakage would not exceed Technical Specification (TS) limits. Licensee calculations also demonstrated that normal leakage through this pathway would constitute less than 0.02% of annual noble gas and radioiodine releases. The inspector concluded that leakage through the purge valves did not appear to constitute a significant unmonitored release pathway.

Item 50-344/89-30-07 (Closed): This item concerned the status of the licensee's Radwaste Action Plan. A revision to the licensee's Process Control Program had been included in the most recent revision to the Offsite Dose Calculation Manual. The inspector verified that an index of applicable procedures for solidification and dewatering of wet radioactive wastes was on file, and that the procedures were readily available.

A revision to Radiation Protection Monitoring Procedure (RPMP) 2, "Routine Packaging of Radioactive Waste," had been postponed. The intention to eliminate Quality Inspection (QI) checks from portions of the procedure had been abandoned; in addition, Corrective Action Request (CAR) C90-3379, related to QI checks of bracing of packages for shipments, had delayed completion of the RPMP 2 revision. Intentions to revise the RPMP 2-series of procedures were being incorporated into a new Radwaste Action Plan; these intentions included relocation of portions of Operating Instruction (OI) 11-7, "Sluicing and Charging Auxiliary Building Ion Exchangers," into RPMP 2-4, "Packaging Low-Level Dewatered Resins in Liners." For further discussion of OI 11-7, see Section 4.

RPMP 5, "Sampling Program to Determine Isotopic Concentrations and Scaling Factors for Classification of Low-Level Solid Radwaste," had been changed to require annual updates to the scaling factors, based on annual samples. The inspector concluded that this practice was an improvement over previous licensee performance in maintaining current scaling factors (see Section 4).

The inspector performed spot-checks of quantification methods included in the revision to RPMP 4, "Determination of Radioactive Material Shipping and Waste Classification." Procedural clarity had been improved, and calculations were more easily reproducible and verifiable than under previous revisions of the procedure.

RPMP 1, "Radioactive Material Receipt and Shipment," had been extensively revised and broken down into component procedures. Overall procedural clarity had improved; however, the inspector noted the following problems:

> RPMP 1-2, "Receipt of Radioactive Material (Non-Fuel)," lists 10 mrem/hr at 2 meters from the transport vehicle as a target radiation level for notifying the Radiation Protection Supervisor and Radioactive Waste Supervisor. The inspector pointed out the more restrictive requirement of 10 CFR 20.205, "Procedures for picking up, receiving, and opening packages," which asks licensee to notify NRC of radiation levels in excess of 10 mrem/hr at 3 feet from the external surface of the package. The licensee acknowledged the more restrictive requirement, and stated that the procedure would be appropriately revised.
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> RPMP 1-2 also states that radiation and contamination surveys must be performed within 3 hours for packages of radioactive material received during normal working hours, and within 18 hours for packages received outside of normal working hours. The procedure states, however, that these surveys are only required if the

material is greater than a Type A quantity. The inspector pointed out that 10 CFR 20.205(b) imposes the above time requirements for contamination surveys of any non-exempt radioactive material received, even if less than a Type A quantity. The inspector noted that the same inaccurate requirement was present in RPMP 3, "Receipt of New Fuel." The licensee acknowledged the inspector's comments, and stated that the procedures would be appropriately revised.

RPMP 1-3 asks that radiation and contamination surveys be performed on the transport vehicle, on each shipping container, on the protective jacket of each fuel assembly, and so forth. The procedure requires that these surveys be logged on Attachment 6 to RPMP 1. The inspector noted that the size of the survey map given in Attachment 6 was approximately 1" by 3". The licensee acknowledged that the size of the Attachment 6 survey map was not reasonable for the detailed surveys required, and stated that the procedure would be appropriately revised.

The inspector also noted that RPMP 1-3 requires contamination surveys to be performed on the "inside surfaces of each shipping container prior to opening." The licensee acknowledged the apparent impossibility of performing such a survey, and stated that the procedure would be appropriately revised.

The inspector reviewed documentation of inspections and surveys for radioactive material received in 1990. The inspector discovered no instances in which the procedural deficiencies noted above had resulted in noncompliance with NRC requirements.

The inspector noted, finally, that the licensee had revised the in-house computer program for waste processing calculations in lieu of using the Waste Trak computer program. The inspector had no further questions regarding completion of the licensee's Radwaste Action Plan.

This item was also discussed in Inspection Reports 50-344/90-19, 50-344/90-25, and 50-344/90-31.

Item 50-344/90-37-01 (Closed): This item concerned achievement of TS required Lower Limits of Detectability (LLDs) by a vendor laboratory in analysis of Iodine-131 in milk. The licensee had calculated the Iodine-131 LLD for all 1990 licensee radiological environmental samples analyzed by the vendor laboratory, and concluded that the desired LLD of 0.5 picocuries per liter had only been exceeded on one occasion. The licensee discussed the deficiency with the vendor laboratory. The licensee stated that additional monitoring of vendor laboratory analysis results would ensure that the problem would not recur.

3. Followup of Items of Noncompliance (92702)

Item 50-344/90-31-01 (Closed): This violation involved the licensee's completion of five shipments transferring radioactive byproduct material to a licensee of the State of Washington (SOW) while failing to verify that the transferee's license authorized receipt of the type, form, and quantity of byproduct material transferred. The licensee had counseled the Acting Radwaste Unit Supervisor on management expectations concerning actions when vendor qualifications are called into question. RPMP-1 had been revised to require independent verification of transferee authorization to receive byproduct material shipments through quality control checks.

The inspector observed licensee preparations for a shipment of dry active waste and powdex resin in drums to the same SOW vendor noted above for processing. The inspector discussed changes made to the licensee/vendor purchase order with the Unit Supervisor, Radwaste. The supervisor remarked that a statement requiring the vendor to have a quality control program had been temporarily inserted into a draft of the purchase contract, but had subsequently been removed, based on licensee determination that regulations did not require the vendor to have a quality control program. The inspector noted that 10 CFR 20.311, "Transfer for disposal and manifests," requires in Section (f) that "any licensed waste processor who treats or repackages wastes shall . . . conduct a quality control program to assure compliance with 61.55 and 61.56 . . ." The licensee acknowledged the inspector's observation, and chose to delay the waste shipment under preparation until verification could be obtained of whether the SOW vendor had, in fact, such a quality control program in place.

4. Radwaste Management and Transportation (86750, 84850, 86721)

Audits

The inspector noted that the last licensee audit of radwaste and transportation was CKS-111-89, conducted in October 1989. This audit was previously discussed in Inspection Reports 50-344/89-30 and 50-344/90-31. Discussions with members of the licensee's Quality Assurance Group indicated that biennial audits are performed of this program area. The inspector noted that Regulatory Guide (RG) 7.10, Annex 2, "Quality Assurance Programs Applicable to Procurement, Use, Maintenance, and Repair of Packaging Used in the Transport of Radioactive Material," recommends at least an annual frequency of audits in this area.

Changes

The inspector reviewed several past changes to radwaste systems to determine whether evaluations had been performed as required by TS 6.16, "Major Changes to Radioactive Waste Treatment Systems." Changes reviewed included:

*rendering obsolete the waste concentrate holding tanks and pumps;

*rendering obsolete the solid radwaste process module;

*installing liquid radwaste demineralizers; and

*capping component cooling water lines to the radwaste evaporator.

TS 6.16.1.2.d requires the licensee to have available for review "an evaluation of the change which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously estimated in the license application and amendments thereto." This TS had been incorporated into the license in December 1984. The inspector's review of Requests for Design Change (RDCs) 83-052 and 88-004 and discussions with cognizant personnel revealed that, although the changes described above were performed after incorporation of TS 6.16, the required evaluations had not been performed. However, upon examination of a licensee internal event report (ER 90-09), CAR C90-3253, and minutes of an October 30, 1990, Plant Review Board meeting, the inspector determined that the licensee had identified the failure to comply with TS 6.16 in the above instances. The inspector noted, further, that an internal licensee commitment had been established to complete the required evaluations by March 15, 1991.

The inspector concluded that failure to complete required evaluations prior to accomplishing the above changes constituted a violation of TS 6.16. However, this licensee-identified violation is not being cited because the criteria specified in Section V.G. of the Enforcement Policy were satisfied (NCV 50-344/91-02-01). This matter was brought to the licensee's attention during the inspection and at the exit interview.

The inspector reviewed Amendment 14 to the licensee's Final Safety Analysis Report (FSAR), dated November 14, 1990. The inspector noted that portions of Chapter 11.4, "Solid Waste Management System," had not been updated to reflect the effects of current methods of operation. Prior to the amendment, Section 11.4.2.3, "Expected Volumes," had read as follows:

> The expected annual volume of solid radioactive wastes, together with the associated curie content of principal nuclides to be processed, are described in the following sections. . . .

Amendment 14 had changed this section to read:

> The original design basis annual volume of solid radioactive wastes, together with the associated original design basis curie content of principal nuclides expected in wastes are described in the following sections. . . .

Amendment 14 had similarly changed the wording of Sections 11.4.2.3.1, "Spent Resin Wastes," 11.4.2.3.3, "Expended Filter Wastes," and 11.4.2.3.4, "Miscellaneous Solid Wastes." Although extensive changes had been made to the methods of processing solid radwaste, no description of the estimated effects of these changes had been provided. Instead, the wording had simply been changed to state that the narrative described the "original design basis."

10 CFR 50.71, "Maintenance of records, making of reports," states in part:

> (e) Each person licensed to operate a nuclear power reactor pursuant to the provisions of 50.21 or 50.22 of this part shall update periodically . . . the Final Safety Analysis Report

(FSAR) originally submitted as part of the application for the operating license, to assure that the information included in the FSAR contains the latest material developed. This submittal shall contain all the changes necessary to reflect information and analyses submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submission of the original FSAR or, as appropriate, the last updated FSAR. The updated FSAR shall be revised to include the effects of: all changes made in the facility or procedures as described in the FSAR . . .

(4) Subsequent revisions shall be filed no less frequently that annually and shall reflect all changes up to a maximum of 6 months prior to the date of filing.

The inspector concluded that the licensee's failure, in Amendment 14, to include the effects of all changes made in the facility or procedures as described in the FSAR constituted a violation of 10 CFR 50.71(e) (50-344/91-02-02). The inspector noted that a Notice of Violation for failure to comply with 10 CFR 50.71(e) was issued with Inspection Report 50-344/90-02. Corrective action for the earlier violation included procedural changes, retraining, and a review of previous design changes. As this corrective action should have prevented the present condition, this is considered a repeat violation. This matter was brought to the licensee's attention during the inspection and at the exit interview.

Implementation of the Solid Radioactive Waste Program

The inspector reviewed this program area by direct observation, review of applicable procedures and records, and discussions with cognizant personnel.

Processing

The inspector observed the licensee's January 9, 1991, performance of OI 11-7, Section 6.3.3, involving sluicing of resin slurry from a steam generator blowdown ion exchanger to liners placed in the Auxiliary Building crane bay. The inspector noted the following procedural steps:

6.3.3.6 Verify that resin is being transferred by monitoring the discharge line in the crane bay with radiation detectors.

6.3.3.7 Transfer resin until level indicator shows that liner is nearly full and then QUICKLY CLOSE SG-032 (SG-043) resin outlet valve.

6.3.3.8 CLOSE SR-057, ball valve in the crane bay.

6.3.3.9 CLOSE SG-036 (SG-046) backflush inlet valve.

6.3.3.10 Transfer resin inlet hose to other liner.

The inspector noted that the Radiation Protection (RP) Technican could not determine by radiation levels on the transfer line at what point resin flow was initiated (due, apparently, to the low activity of the resin). As a result, more than 30 minutes of attempted transfer occurred without certainty that resin was being transferred. The operators observed the "Hi" alarm on the level indicator, but were not certain that this alarm indicated that the liner was being filled with resin. The operators stated that verification of transfer was occasioned by receiving the "Hi-Hi" alarm from the same level indicator.

After several attempts to dislodge possible slugs of resin from the transfer line, the operators expressed frustration at the inability to determine whether or not resin was in fact being transferred. Although the "Hi-Hi" alarm had not been received on the level indicator, the operators initiated valve operations as described in procedural steps 6.3.3.7, 6.3.3.8, and 6.3.3.9, above, and switched the resin inlet hose to the other liner. When the utility worker disconnected the hose, several inches of resin were present at the disconnect. Some resin was scattered onto the top of the liner, and some remained piled on the connection. The operators could not initially determine why the "Hi-Hi" alarm had not sounded; they asked the utility worker to remove the probe connection and visually peer into the opening to determine if the liner was really full, or whether only a slug was clogging the transfer connection. The utility worker removed the probe connection and stated that the liner appeared filled to the brim. The operators then stated that the resin must have been too dry, and therefore piled up in a conical fashion, leaving a void at the point of the "Hi-Hi" alarm, occasioning failure of the alarm to sound. The operators were not sure whether more water should have been added to the resin slurry, and stated that the procedure gave no guidance on this point. Without resolving this question, the operators proceeded to transfer the remaining resin into the second liner.

When the transfer to the second liner was nearly complete, one worker called the RP office and was told by a member of the RP staff that the level indicator had failed to function as desired during previous resin transfers, which only indicated that the resin was dry and piling up conically, and was not a cause for concern.

During subsequent conversations with the inspector, the radiation protection manager (RPM) stated that the level indicator had been tested successfully in water both prior to and after the resin transfer described above. The RPM stated, in addition, that the level indicator used a conductivity probe, and that resin dryness could render the level indicator ineffective either by causing the resin to pile up conically and create a void at the probe, or by dryness of resin touching the probe failing to produce sufficient conductivity.

PGE 8010, "Nuclear Quality Assurance Manual," Appendix C, defines the applicability of quality criteria to radioactive waste management systems, and defines the solid waste management system as extending to "the point of storage of packaged solid wastes prior to shipment offsite to a licensed burial ground." Section g of the appendix states:

> Nonconforming Activities and Corrective Action - Measures are established to assure that conditions adverse to quality in the radioactive waste management system such as failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are promptly identified, reported, and corrected.

The inspector noted that no documentation existed for prior occasions when resin dryness had rendered the cask level indicator ineffective, nor had lessons learned been incorporated into appropriate procedural changes or pre-evolution briefings. The inspector concluded that this condition adverse to quality had not been identified and corrected as required by PGE 8010. This matter was brought to licensee management attention during the inspection and at the exit interview.

The inspector made the following additional observations concerning radiological controls during the resin transfer:

*Workers repeatedly reached into the contaminated area using only surgeon's gloves as protective clothing to operate valves and adjust pump speed. One operator was observed handling a portable radio outside the contaminated area immediately after reaching in to operate a valve, using the same gloved hand. The same operator later used the radio barehanded, without an intermediate frisk of either the hand or the radio. Another worker reached in on several occasions to adjust pump speed; this individual did not change gloves until at least 30 minutes into the evolution, and during this time he repeatedly adjusted his eyeglasses, touched other items in the clean area, and on one occasion left the room for supplies, all without frisking the potentially contaminated gloves. The RP technician present was not observed correcting any of the above practices.

*Air samples were taken by the grab method during the resin transfer. The air sampler was stopped, however, before disconnecting the transfer hose and moving it to the second liner. Subsequently, other vent and overflow connections were transferred from liner to liner. No air samples were observed taken during the time of any hose being disconnected. The highest air samples taken during the resin transfer indicated an airborne particulate activity level of approximately 5 E-10 uci/ml. The RP technician stated that this activity level was negligible; however, he could not remember the regulatory or licensee limit for posting an airborne radioactivity area, nor could he recall the level at which a sample filter was required by licensee procedure to receive additional isotopic analysis by GeLi detector.

The inspector noted that surgical gloves are not mentioned as permissible protective clothing in either the Radiation Protection

Manual, Section II.D.2, "Anti-Contamination Apparel (Anti-C's)," or in RPMP 25, "Instructions for Anti-Contamination Clothing Use." RPMP 25, however, lists as a precaution: "Inspect the anti-contamination clothing carefully before dressing." The inspector noted that no such inspections were performed by the resin transfer workers during repeated donnings of surgical gloves.

The inspector noted, further, that RPMP 24, "Rules for Working in Radiologically Controlled Areas," Section 8.2.9, states in part:

> Do not touch your face with contaminated gloves. This includes . . . adjusting glasses . . .

The inspector noted, finally, that Radiation Protection Procedure (RP) 119, "Airborne Activity Sampling and Analysis," Section 6, "Sampling Requirements," states in part:

> 6.1.2 Air samples will be taken and analyzed . . . at least every four hours for jobs:
>
> > b. During activities which might cause contamination to become airborne such as . . . when opening systems which contain radioactive fluids.

TS 6.11 states:

> Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

The inspector recognized this particular observation involved relative low radiological risk however failure to adhere to the contamination control and airborne activity monitoring procedures described above constituted a violation of TS 6.11 (NCV 50-344/91-02-03) and could be a more significant safety issue under different conditions. However, this violation is not being cited because the criteria specified in Section V.A. of the Enforcement Policy were satisfied. This matter was brought to licensee management attention during the inspection and at the exit interview. The licensee took prompt corrective action to counsel the individuals involved in adherence to radiation protection procedures.

<u>Storage</u>

During discussions with the inspector, members of the licensee's radwaste group stated that two dumpsters containing contaminated soil were currently being stored outside the protected area near the cooling towers. A former RP manager (RPM) stated that, early in plant life, lifting of steam generator safety valves concurrent with primary-to-secondary leakage had caused low-level contamination of soil at certain locations inside the protected area. In September 1987 minor excavation incident to installation of grounding cables had removed quantities of the contaminated soil, which had been placed in dumpsters pending disposition. Although no formal evaluation had been conducted, the dumpsters had been placed in storage outside the protected area as noted, based on soil sample analyses indicating very low levels of radioactivity.

The inspector and the current RPM toured the area adjacent to the cooling towers, and discovered that three partially filled dumpsters of soil had been stored, rather than two, as stated earlier by licensee representatives. No labels were present on the dumpsters to indicate container contents.

The inspector requested copies of any surveys performed on the soil or on the dumpsters. The licensee stated that formal records of the soil samples had not been maintained, due to the low levels of activity present. The licensee discovered, however, that an RP foreman had retained information from the original surveys performed on the soil. This information, together with measurements of container volume and other assumptions used by the licensee, was provided to the inspector.

The licensee determined that the three dumpsters contained 25.4, 23.7, and 15.2 cubic yards of soil, respectively. Original sample data indicated an average Cesium 137 concentration of approximately 7 E-7 uci/gm, and an average Cesium 134 concentration of approximately 1 E-7 uci/gm. Density of the soil was recorded as 2717 grams per 2-liter sample, which converted to 1.04 E6 grams per cubic yard. The inspector calculated the activity in each dumpster to be as given below:

	Dumpster 1	Dumpster 2	Dumpster 3
Cs-137	18.5 uci	17.2 uci	11.1 uci
Cs-134	2.6 uci	2.5 uci	1.6 uci

10 CFR 20.203, "Caution signs, labels, signals and controls," states in part:

(f) Containers.

(1) Except as provided in paragraph (f)(3) of this section, each container of licensed material shall bear a durable, clearly visible label identifying the radioactive contents.

(3) Notwithstanding the provisions of paragraph (f)(1) of this section labeling is not required:

(i) For containers that do not contain licensed materia[illegible] quantities greater than the applicable quanti[illegible]ted in Appendix C of this part.

Appendix C lists the q[illegible] for Cesium 137 as 10 uci, and the quantity for Cesium 134 as 1 uci.

The inspector concluded that failure to provide labels identifying the radioactive contents of dumpsters containing licensed material with quantities of Cesium 137 and Cesium 134 greater than the quantities listed in Appendix C constituted a violation of 10 CFR 20.203(f) (50-344/91-02-04).

The inspector noted, in addition, that RPMP 22, "Temporary Storage of Low-Level Radioactive Waste and Contaminated Equipment Outside the Protected Area," states in part:

4.1.8 Periodic radiation and contamination surveys shall be conducted in accordance with plant procedures.

4.1.10 Container integrity shall be monitored quarterly.

4.2.3 A description of additional storage space used under this procedure shall be included in each semi-annual report (PGE-1015).

In discussions with the inspector, members of the radwaste group indicated that, as of January 9, 1991, no surveys for radiation or contamination had been performed on the stored soil for at least two years. The inspector could find no evidence that container integrity had been monitored quarterly. A description of the additional storage space used had not been included in any issue of PGE-1015.

This matter was brought to licensee management attention as applicable data became available during the inspection, at the exit interview, and in subsequent telephone calls between the inspector and the RPM on January 16, 1991.

Control of Packaging Materials

The inspector reviewed CAR C90-5420, which discussed the release to unrestricted areas of unused yellow bags preprinted with radiological labels. According to the licensee, six pallets of these bags had erroneously been determined to be unacceptable for use, and had been sent to the licensee's surplussing facility for shredding. One roll (approximately 100 bags) had been sold by the surplussing facility to a salvage contractor. One bag, lost by the contractor, had been found on a public road near the licensee's Beaver facility. A second bag, used by the contractor, had been found at the Beaver facility. A third bag had been used by a worker at the surplussing facility to collect raked leaves.

The licensee had recovered the first two bags. The third bag had been sent to a landfill and was unrecoverable. The salvage contractor stated that one additional bag may have been used, but was unsure. All other bags were returned to the licensee for use.

10 CFR 20.203(f)(4) states:

Each licensee shall, prior to disposal of an empty uncontaminated container to unrestricted areas, remove or deface the radioactive material label or otherwise clearly indicate that the container no longer contains radioactive materials.

The failure to remove or deface the labels appeared to be a violation of 10 CFR 20.203(f)(4) (NCV 50-344/91-02-05). However, this licensee-identified violation is not being cited because the criteria specified in Section V.G. of the Enforcement Policy were satisfied. The licensee had taken prompt corrective action to revise material control procedures and administrative orders, as applicable, to ensure controlled issue and disposal of items bearing radioactive material labels or designations. This matter was brought to licensee management attention during the inspection and at the exit interview.

Preparation of Radwaste for Shipment and Disposal

The inspector reviewed the frequency with which the licensee had updated scaling factors used in classifying waste for shipment and disposal. Discussions with members of the radwaste group revealed that shipments of dry radioactive waste made in the first two quarters of 1990 had used scaling factors based on 1987 samples. Although samples of appropriate waste streams had been taken on a yearly basis, shipment to the offsite laboratory had been hindered by delays in constructing a box for shipment. The radwaste group had requested the box in mid-1989; however, apparent miscommunication and disagreement between the radwaste group and the licensee's procurement department had postponed completion of the box until August 1990. The inspector noted that new scaling factors were in use that had been prepared in December 1990, and that were based on 1990 samples. The inspector noted, in addition, that the latest revision to RPMP 5 required annual reevaluation of scaling factors based on annual samples, as noted in Section 2, above.

The inspector reviewed the licensee's methods of loading expended filters and similar items of solid radwaste into steel liners and high integrity containers (HICs) in preparation for shipment. The licensee had designated several areas for temporary storage of items removed from radioactive systems, pending radwaste evaluation of the items and prior to loading the items into shipping/burial containers. The inspector noted the limited capacity of these temporary storage areas, and their proximity to areas designated for loading of liners and HICs. In discussions with the inspector, members of the radwaste group stated that the purpose of the temporary storage areas had been to allow radwaste evaluation of exactly how and where each item should be loaded, to allow accurate radiation measurements of the item, to maintain accurate inventory of each shipping/burial container, and to allow prudent distribution of radiation levels within containers. In practice, however, according to the radwaste group, the temporary storage areas filled rapidly, resulting in increased local radiation levels that required closure of the temporary storage containers and rendered the items inaccessible for radwaste evaluation.

The inspector noted several instances in which filters removed from highly radioactive systems had been placed in modified NUPAC Type III liners serving as temporary concrete shields. Since these containers did not appear to meet requirements for shipment and burial, the licensee had simply placed the containers in temporary storage. Three such items, designated in radwaste inventories as No. 9, No. 86, and No. 82, had been in temporary storage since 1981, 1984 and 1985, respectively.

The inspector reviewed methods and documentation for loading of L-64, a NUPAC Type III Liner placed in service on June 23, 1989. This liner had been designated to accommodate filters generated in cleanup of the clean waste receiver tank. Expended bag-type filters had been removed from the system inside a glove box containment, rolled, and placed in the glove box transfer sleeve. Additional filters were added to the transfer sleeve until radiation levels from the transfer sleeve became restrictive; the transfer sleeve was then sealed off and removed for eventual placement in L-64. Individuals loading L-64 had been instructed to make a line entry for each item loaded on Attachment A of RP-132, "Temporary Storage of Radioactive Waste"; however, since different bagged portions of the glove box transfer sleeve contained varying numbers of filters, no record was maintained of how many filters were loaded for each line item.

The radwaste group had also verbally instructed individuals performing the loading of L-64 to use special shields when measuring radiation levels of the items being loaded, in order to shield high-energy beta radiation. Since a true gamma reading provides more accurate input for the licensee's methods of determining waste classification, the radwaste group had provided plastic shields specially adapted for Model RO-2 radiation monitoring instruments for convenient use. The shields were used inconsistently, however, and entries of "Waste Radiation Level" made on Attachment A for L-64 did not denote use of the special shields. No open window/closed window readings were provided, units were inconsistent or entirely missing, and two entries were made with no corresponding radiation measurements listed.

Finally, the radwaste group stated that effective use of the temporary storage area was not made, and regard was not taken for distribution of varying radiation levels through the container, although decipherable readings logged ranged from 20 R/hr to 100 mR/hr.

After completion of loading on October 4, 1989, L-64 was welded closed. Subsequent calculations by the radwaste group, however, revealed that the degree of inaccuracy occasioned by inconsistent radiation measurements and inventory control resulted in classification of L-64 as Class C waste. Since a NUPAC Type III

Liner does not meet the stability requirements of 10 CFR 61.56 for Class B and C wastes, L-64 was unfit for disposal.

The inspector noted that, at the time of the inspection, the licensee had prepared no documentation identifying the deficiencies present in methods used to load L-64. The container in question was still in temporary outdoor storage, and no solution had been reached as to its disposition.

The inspector noted, further, that in spite of procedural revisions that had taken place since closure of L-64, the radwaste group could not express confidence that methods currently in place for loading shipping/burial containers, combined with the level of understanding of individuals designated to perform loading operations, would ensure that appropriate radiation measurements, inventory control, and documentation would be performed in a manner to allow accurate classification for disposal of the waste.

The inspector noted again the following statement from PGE 8010, Appendix C, Section g:

> Nonconforming Activities and Corrective Action - Measures are established to assure that conditions adverse to quality in the radioactive waste management system such as failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are promptly identified, reported, and corrected.

The inspector noted that the lack of licensee recognition and documentation of the deficiencies surrounding loading of L-64, together with inadequacy of current loading methods in ensuring accurate classification for disposal of waste, did not appear to have identified and corrected conditions adverse to quality as required by PGE 8010. This matter was brought to licensee management attention during the inspection and at the exit interview.

Licensee performance in the program area of radwaste management appeared to be marginal. At the exit interview, licensee management acknowledged the inspector's concerns, and stated that an evaluation would be performed of the reasons for the high number of licensee oversights in this area. Specifically, the licensee stated that an evaluation would be made of the resources of the radwaste group, the level of training given to individuals involved in radwaste operations, and the level of priority assigned to radwaste issues.

5. Exit Meeting

The inspector met with licensee management at the conclusion of the inspection on January 11, 1991. The scope and findings of the inspection were summarized. The inspector emphasized the importance of promptness in correcting identified deficiencies, in light of the increased volume of radwaste activities associated with the upcoming outage and with construction of a storage building to enclose the present outdoor radwaste storage area. The licensee acknowledged the inspector's concerns.