U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/85-06(DRSS); 50-316/85-06(DRSS)

Docket Nos. 50-315; 50-316 Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service
Corporation
Indiana and Michigan Electric Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgeman, MI

Inspection Conducted: January 21-25 and 31, February 1, and March 4, 1985

Inspector: L. J. Hueter [signature] 3/8/85 Date

Approved By: L. R. Greger, Chief [signature] 3/8/85 Date
Facilities Radiation Protection
Section

Inspection Summary

Inspection on January 21-25 and 31, February 1, and March 4, 1985 (Reports No. 50-315/85-06(DRSS); 50-316/85-06(DRSS))
Areas Inspected: Routine, unannounced inspection of operational radwaste management program, including gaseous, liquid and solid radwaste, chemical and radiochemical tests, audits and surveillances. Also reviewed were licensee actions on open items and certain Licensee Event Reports (LER). The inspection involved 59 inspector-hours onsite by one NRC inspector.
Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

*E. Abshagen, Department Staff Assistant
*N. Baker, QC Department Assistant
*A. Barker, QA, AEP
S. Bremer, Radiological Support Manager, AEP
*R. Clendenning, Radiation Protection Supervisor
P. Crog, Special Nuclear Materials Manager
J. Fryer, Environmental Coordinator
P. Holland, Radiation Protection Supervisor
*L. Holmes, Administrative Compliance Coordinator
R. Keating, Section Manager Fire Protection and HVAC, Mechanical Engineering Division, AEP
*T. Kriesel, Technical Superintendent Chemistry/Health Physics
J. Nelson, Radiation Protection Engineer
D. Petroff, Performance Engineer
*C. Ross, Staff Engineer
*W. Smith, Jr., Plant Manager
*J. Stietzel, QC Superintendent
J. Veach, Stores Supervisor
J. Wojcik, Plant Chemical Supervisor

J. Heller, NRC Resident Inspector
*B. Jorgensen, NRC Senior Resident Inspector

The inspector also contacted other licensee employees, including members of the technical staff.

*Denotes those present at the exit meeting.

2. General

This inspection, which began about 11:00 a.m. on January 21, 1985, was conducted to examine the licensee's operational radioactive waste systems and related activities for compliance with regulatory requirements. Also examined were past open items and radiological aspects of certain LERs. No significant problems were identified.

3. Licensee Action on Previous Inspection Findings

(Open) Open Item (315/80-23-06; 316/80-19-06): As noted in previous inspection reports, licensee efforts were made to reduce the background levels of liquid effluent monitor R-18 to increase the sensitivity of the monitor. These efforts, including relocation of the monitor to an area having a lower background radiation level and flushing (including acid), have met with partial success. According to licensee personnel, plans to replace this monitor were delayed because of emphasis placed on completion of many post-TMI modifications. Replacement of this monitor is now scheduled to be completed in 1986.

(Closed) Open Item (315/84-17-01; 316/84-19-01): Problems at step-off pad areas. The licensee has reviewed problems identified at step-off pad areas and instituted measures to minimize the problems. The corrective measures include minor changes in arrangements of step-off pads and receptacles for removed protective clothing.

(Open) Open Item (315/84-17-02; 316/84-19-02): Lack of guidance relating removable contamination levels to use of respiratory protection equipment. The inspector reviewed and provided comments on a licensee draft procedure relating removable contamination levels to use of respiratory protection equipment. The licensee stated they would consider inspector comments and expedite preparation and approval of the procedure.

(Open) Open Item (315/84-17-03; 316/84-19-03): Review and evaluate all ESF filter housings for: (1) destination of the drains, (2) adequacy of the number of drains provided for each ESF filter house, (3) verification of type of valves, traps, seals, etc., if any, in each individual drain line, and (4) in the absence of valves or seals, evaluate the effects on the in-place HEPA filter/charcoal adsorber efficiency tests and the potential for release of unfiltered contaminated air from the drain line(s). The ESF filter housing review/evaluation was completed by corporate personnel in late October 1984. From inspector review of the evaluation document, telephone conversations with the corporate personnel who prepared the document, and discussions with plant personnel, the following represents a brief description of the ESF filter housing systems and licensee responses to the questions of concern.

There are a total of seven ESF filter housing units at the plant having roughing filters, HEPA filters, and charcoal adsorbers. There is a filter housing unit for each control room, a shared one for the fuel handling area and two for each reactor unit (one standby) for the ESF equipment ventilation. Two 3-inch drains are installed per filter housing unit except for the two control room filter housing units which have three drains. However, these third drains, located before the HEPA filters, now remain plugged and therefore do not effectively exist. Of the remaining two drains for each filter housing, one is located after the charcoal adsorber and the other before the charcoal adsorber (between the charcoal adsorber and the HEPA filters). The licensee, to address guidance in ERDA 76-21 (referenced in Regulatory Guide 1.52, Revision 2) initiated AEPSC design change RFC DC-12-1316 early in 1976 to install check valves on floor drains for all seven of the filter housing units referenced above. As an interim measure to preclude bypassing of air around filters via the filter housing drains, all filter housing drains were plugged except the final one downstream of the charcoal adsorber. In 1978 the RFC modification was completed for three of the seven filter housings. RFC modifications are scheduled to resume and be completed in 1985 for the remaining four filter housings, the delay being attributed to the many TMI mandated modifications. The three RFC modifications that have been completed include the Unit 2 control room filter housing which now has two open floor drains (upstream and downstream of the charcoal adsorber) and two floor drain check valves (one between the two floor drains and one downstream of the second floor drain). The other two completed RFC modifications are the Unit 2 ESF equipment ventilation filter housing unit and identical standby unit which still have just one open floor drain (downstream of the charcoal adsorber) and one floor drain check valve. Licensee personnel stated that a modification of the RFC is currently under consideration for installing two floor drain check valves and providing two open floor drains in each of the seven filter housings as currently exists in the Unit 2 control room filter housing described above.

The licensee's evaluation shows that all the ESF filter housing drains, except the control room recirculation/pressurization units, flow to the radwaste system via the radwaste hold-up tank. The control room units drain to the turbine building sump, a normally clean system. The adequacy of this drain path will be reviewed further during a future inspection, after discussions with NRR.

Regarding verification of type of valves etc., the licensee evaluation states that "The valve type is a check valve...." In telephone queries with corporate personnel, the inspector was informed that the control room check valves are Hancock, piston type, check valves installed in a position such that the valves are normally closed and water lifts the weight of the piston to allow water flow. The other two installed valves are Lunkenheimer swing check valves which are designed to preclude significant air passage (maximum of .02 cfm at 80 psi air pressure). Plant personnel stated that the plugs placed in certain drain lines as described above are left as is both during in-place filter testing, and during normal operation. No additional plugging or sealing of drain lines is attempted prior to conducting periodic in place filter/adsorber efficiency testing. Because of the check valves and plugs in the filter housing drain lines when the in-place HEPA filter/charcoal adsorber efficiency test is conducted, the efficiency test, states the evaluation document, "will not therefore be degraded by dilution air introduced from the drain system. The problem of a potential release of unfiltered contaminated air is precluded by the addition of valves or plugs." The inspector notes that the latter two conclusions will not be fully valid until the RFC work of installing the remaining check valves in the filter housing drain lines is complete.

(Open) Open Item (315/84-17-04; 316/84-19-04): Provide documentation regarding the high range iodine and particulate effluent sampling system to demonstrate that NUREG-0737, Item II.F.1, Attachment 2 positions and clarifications have been met regarding representative sampling, proper shielding for sample removal and transport, continuous sampling, and provisions for precluding contamination of the high range noble gas monitor with iodine. The original documentation package was compiled in late October 1984. However, due to problems identified during the licensee compilation process, additional documentation has been prepared and added to the package and additional efforts are ongoing to resolve some of the problems. The current status is as follows. Regarding representative sampling, licensee representatives evaluated the potential for moisture problems in sample lines for accident conditions and concluded with a recommendation that the lines be heat traced. Heat tracing is to be accomplished under RF 2840, scheduled for completion in 1987.

During the inspectors review, it was learned that other factors affecting representative sampling such as plate-out as a function of the species of iodine, type of piping, length and diameter of pipe, and sample flow rate have not been evaluated for iodine and particulates. This matter was discussed at the exit meeting. Regarding the source term used to evaluate the expected dose rates for sample removal and transport, the licensee provided a document evaluating the dose using a source term of 100 uCi/cc of iodine and particulates combined rather than 100 uCi/cc of each. However, if the source term is doubled, the evaluation shows that the dose to the whole-body and extremities would not exceed about 3 rems and 58 rems respectively; well within the GDC 19 criteria of 5 rems whole body and 75 rems to the extremities. The evaluation used a 30-minute sample and a sample flow rate of 500 cc/min. The sample activity is so high that it cannot be analyzed on the GELI system in the normal manner. This problem is still being evaluated by the licensee and was discussed at the exit meeting. Regarding the need for an iodine adsorber before the high range noble gas monitor to preclude contamination of the monitor, upstream of the monitor is an MSA Ultra Filter Air-Line Assembly which contains a HEPA filter cartridge and two 150 cc charcoal cartridges in series for removal of iodine. Regarding the provision for grab sampling of iodines and particulates, but lack of provision for required continuous sampling, the licensee is considering several alternatives including provision for continuous sampling from the grab sample location, possible modification and use of the MSA Ultra Filter Air-Line Assembly, or request to NRR for relief from the continuous sampling requirement. This matter was discussed at the exit meeting.

(Open) Open Item (315/84-17-05; 316/84-19-05): SPING-4 monitor calibrations and setpoints. As noted in the initial report, an inverted calibration factor in the procedure to convert initial monitor calibrations, which used gases and spiked filter media, to subsequent solid source calibrations was identified by the licensee and corrected. An LER, 315/84-021, was issued regarding this matter that showed dose and dose rate remained well within technical specification requirements. During the licensee review, another calibration problem was identified involving some of the low range noble gas monitors in that the calibration sources were not being fully inserted in some cases due to the resistance of an "O" ring. These errors were also corrected. In combination the errors ranged from very slightly conservative to about a factor of two nonconservative for technical specification required channels. Also, as noted during the initial report, most plant airborne releases during the period were not affected by the errors because they were based on grab samples and other continuous monitors. Further, a licensee review of a random selection of about 25% of the monitor based releases during the period in question indicated that releases reported in the Semiannual Radioactive Effluent Release Reports would have been nonconservative by less than one percent. Also, as noted during the initial report, the calibration factor problems resulted in some alarm setpoints being nonconservative by up to a factor of two, and should an emergency have arisen, the monitors would have been relied upon as a basis for onsite and offsite actions where an error factor ranging up to two would have been marginally acceptable. No violations were identified.

Selected initial gas calibration data and subsequent solid source calibrations for the SPING-4 low, mid, and high range noble gas effluent monitors were reviewed. During the initial calibrations conducted in February 1982, gases were used. Plant generated gases, primarily Xe-133, with a concentration in the range of 10^{-4} to 10^{-3} uCi/cc were used for the low range gas monitor and similar gas with a concentration in the range of 10^{-1} to 10^{0} uCi/cc were used for the mid range noble gas monitors to obtain a calibration constant in uCi/cc/cpm. In a similar manner, a calibration constant was determined for the high range noble gas monitors using a purchased source of Kr-85 at a concentration of about 10^{+3} uCi/cc. The licensee stated that gas calibrations were only performed on some of the SPING-4 noble gas monitors, because the geometry and setups of each is essentially identical and because of the uniformity of response of those which were calibrated with gas. Those monitors not actually calibrated with gas were assigned a calibration factor corresponding to the average of those actually calibrated with gas. The transfer from the gas calibrations, which occurred in February 1982, to the solid source calibrations did not take place immediately but about four months later in late June 1982; apparently because of a delay in arrival of the sources. The transfer calibration assumed that no change had occurred in the gas calibration constant in the interim four month period, i.e., each monitors' response had remained constant. Although this cannot be substantiated for the period involved, the licensee can show that subsequent calibration checks with the solid sources show that monitor responses have remained quite stable. If the same stability was maintained over the four month period the maximum loss in sensitivity would have been less than one half of one percent. For the solid source calibration checks, two Sr-90/Y-90 cap sources of differing strengths are used for the low range noble gas monitors, one of which gives a reading about 7 percent of full scale and the other about 20 percent of full scale. Effectively, an average of the two calibration constants is utilized. A setup has been established using a Cs-137 solid source at two different distances for both the mid range and high range noble gas monitor calibrations. In each case, the more distance source position (36 inches) gives a reading of about 0.4 percent of full scale and the closer source position gives a reading of about 2.7 percent of full scale. As with the low range noble gas monitor, an average of the two calibration constants is utilized. This calibration method, which is equivalent to that described in the vendor's Technical Manual for the SPING 3/SPING 4, assumes a linear response over the range of the instruments. At the time of this inspection, the licensee had no data regarding linearity characteristics of the low, mid and high range noble gas monitors, but the licensee stated that the vendor has agreed to send them data regarding linearity characteristics of the various type monitors. This data will be reviewed during a future inspection.

As part of the licensee's corrective action to the original licensee identified calibration/setpoint problems, the licensee developed a program of independent review by corporate personnel of all existing, revised, and new radiation protection procedures. During the review of a setpoint adjustment formula in procedure 12 THP 6010.RAD.335, it was discovered that dose rate factors required by the ODCM were being

calculated incorrectly when using the "Setpoint 3" computer program to calculate the doses and dose rates for batch gaseous releases. The ODCM required dose rates to be developed for the total body and skin whereas the "Setpoint 3" computer program determined air gamma and air beta doses and incorrectly identified them as whole body and skin doses, respectively. The error resulted in the radiation monitoring system (RMS) alarm setpoints being 1.7 times high for skin dose rate and 2.0 times high for the total body dose rate. The licensee recalculated a random sample of 25 percent of the 1983 gaseous waste releases using the correct dose rate factors and none exceeded the technical specification limits. An LER, 315/84-022, was issued regarding this licensee identified noncompliance with the ODCM required setpoints. The procedure has been corrected. Release quantifications were not affected by this error.

Also during the review of radiation protection procedures, when corporate personnel prepared to verify that the setpoints for the continuous liquid multiple release points were in compliance with the ODCM, the original voluminous data/calculations could not be located. As a result, this work is currently being redone and is scheduled for completion in March 1985. At this point the licensee has no reason to believe that the setpoints are incorrect. The new data is to be placed in secured plant files.

The calibration/setpoint problems described above appear to be attributable to a number of factors including: the almost simultaneous implementation of numerous more sophisticated monitors to meet NUREG-0737 requirements; new methodologies (ODCM) for evaluating compliance with effluent release limits; termination of some key personnel involved in the equipment installation, calibrations, and preparation of procedures; and probably most important, inadequate procedures/procedure reviews before implementation of new and revised procedures. This latter problem is being addressed by the licensee.

For information regarding other LERs involving setpoints/alarms/activations, refer to Section 9.

Other matters to be reviewed regarding NUREG-0737 Item II.F.1.1 for high range noble gas effluent monitors during a future inspection include: (1) for clarification Item (4)(b), verification that the computer program (Dose Assessment Program (DAP)), developed by corporate personnel for use in dose determination following an accident situation, is properly related to krypton-85 gas calibration of high range monitor; and (2) for clarification Item (3) that verification of proper monitor location (main steam line upstream of valves) and verification that the computer code developed for the licensee (for various accident scenarios) by Research Concepts Inc. incorporates corrections for low energy gamma for steam line monitors as well as correction for radionuclide spectrum distribution as a function of time after shutdown (Clarification Item (4)(b)) for the steam line monitors.

4. <u>Gaseous Radioactive Waste</u>

The inspectors reviewed the licensee's gaseous radwaste management program, including: gaseous radioactive waste effluents for compliance with regulatory requirements; adequacy or required records, reports, and notifications; process and effluent monitors for compliance with maintenance, calibration, and operational requirements; and experience concerning identification and correction of programmatic weaknesses.

The inspector selectively reviewed records of gaseous releases made during 1984. Continuous and batch releases occur from unit vents, steam jet air injectors, gland seal exhausts, gas off of steam generator blowdown startup tanks, containment purge/pressure relief, and gas decay tanks. Unit vents are sampled and analyzed weekly. For gas decay tank releases from the unit vent, setpoints are adjusted prior to the release based on analysis of a sample from the tank. The noble gas release rate increased significantly during the last half of 1984 but remained within past variations. The 1984 cumulative noble gas air dose was 1.8% of the gamma air dose limit of 10 mrad and 2.7% of the beta air dose limit of 20 mrad. Iodine and particulate activity in plant gaseous effluents was not elevated during any part of 1984. The elevated noble gas releases were attributed primarily due to leakage on a Unit 1 pressurizer safety valve which was being repaired at the time of the inspection.

The inspector selectively reviewed initial gas calibration and subsequent solid source calibration checks of unit vent monitors, steam jet air ejector monitors, and gland steam effluent monitors. The findings are discussed in Section 3.

5. <u>Liquid Radioactive Wastes</u>

The inspector reviewed the licensee's liquid radwaste management program, including: determination whether liquid radioactive waste effluents were in accordance with regulatory requirements; adequacy of required records, reports, and notifications; determination whether effluent monitors are maintained, calibrated, and operated as required; reactor coolant chemistry; and experience concerning identification and correction of programmatic weaknesses.

Sampling and release methods and procedures, records, and reports appear adequate. Tritium activity in batch liquid releases was elevated in the latter part of the year. This was also attributable primarily to the leakage on a Unit 1 pressurizer safety valve. The tritium releases were highest in the 4th calendar quarter but were only about one percent of the technical specification limit. For 1984, cumulative total body dose from liquid effluents was 17.7% of the three mrems limit and the cumulative annual liver dose from liquids was 7.3% of the ten mrems limit. The 1984 cumulative iodine and particulate (greater than eight-day half-life) dose from all pathways (liquid and gas) was 2.7% of the 15 mrems limit.

The new 15-gallon per minute radwaste evaporator, which has been under construction for the past several years, has now been preoperational tested but is still not in an operational condition due to the need to relocate some instrumentation, provide some heat tracing, and resolve some other remaining problems with the equipment. A 10CFR50.59 review of this additional equipment was performed.

Liquid monitors for both batch and continuous releases have been calibrated using Cs-137. Set points are ODCM based, but original data for liquid setpoints is not available as noted in Section 3. A selective review of records indicates that calibrations are being conducted on a timely basis.

The licensee has no secondary water chemistry technical specification. However, the licensee has adopted the EPRI steam generator owners group guidelines for maintaining secondary water chemistry. The inspector reviewed selected licensee records to determine compliance with technical specification requirements for reactor coolant periodic tests, chemical control, and radioactivity. Records for 1984 were reviewed. At no time were the technical specifications for chloride, fluoride, dissolved oxygen, or specific activity exceeded in 1984. However, on January 11, 1985, just following a planned shutdown of Unit 1, the dose equivalent I-131 specific activity of the primary coolant exceeded 1.0 microcurie per gram for a period of about 24 hours, peaking at 1.52 microcuries per gram. This may be indicative of a developing fuel cladding problem. Sipping of fuel to identify and remove those fuel elements with cladding failures is planned during the Unit 1 refueling, maintenance, and ten-year in-service inspection (ISI) outage scheduled to begin this Spring.

There were at least eight instances in 1982 when the dose equivalent I-131 specific activity exceeded 1.0 microcurie per gram due to fuel cladding failures. Fuel sipping techniques were used and fuel elements identified with cladding problems were removed. A review of 1982 effluent records showed no significant increase in iodine effluent releases in either gaseous or liquid effluents.

No violations or deviations were identified.

6. Solid Wastes and Transportation

The inspector reviewed the licensee's solid radwaste management program, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; adequacy of implementing procedures to properly classify and characterize waste, prepare manifests, and mark packages; procurement and reuse of packagings; transportation incidents; adequacy of required records, reports, and notifications; and experience concerning identification and correction of programmatic weaknesses.

The Environmental Group has responsibility for all solid radwaste and transportation activities except infrequent nonwaste type radioactive material shipments which have been handled by radiation protection technicians. This practice is in the process of being changed such that the Environmental Group will be responsible for assuring all shipments meet regulatory requirements. This change is the result of a recent licensee identified and reported occurrence involving a radioactive (nonradwaste) shipment of some contaminated camera equipment to Westinghouse. Licensee procedures were not fully followed by the radiation protection technician preparing the shipment due in part to inexperience and limited training in shipping matters and pressures to meet time constraints. Because of this, the shipping paper was inadvertently not provided to the truck driver upon leaving the plant, but a telecopy was provided in transit.

The inspector noted that the licensee's radwaste procedure (12 PMP 3150 PLP.001 "Radioactive Waste Process Control Manual") has been revised to comply with low-level radwaste classification, form, and stabilization requirements of 10 CFR 20.311 and 10 CFR 61. Correlation factors to determine concentration of difficult-to-measure radionuclides such as transuranics and beta-emitters are based on vendor analysis of samples from various plant areas/systems such as reactor coolant, spent fuel pit water, evaporator bottoms, various resin sources, and plant smears.

The inspector toured portions of the radwaste facility; no problems were identified. Overall performance of the process control program appeared to be adequate.

Records of solid radwaste shipments made in 1984 and early 1985 were selectively reviewed. The licensee has had good experience with the vendor (Westinghouse-Hittman Nuclear, Inc.) maintained and operated waste solidification system which utilizes sodium metasilicate and for resin dewatering. Packages used include 17H drums, Hittman HN100 high integrity containers (HIC) for dewatered resins, Hittman 170-cubic foot large volume matrix (LVM) liners, and 4'x4'x8' metal boxes. The vendor is providing cask maintenance. All shipments were Class A except certain resin shipments which were Class B (due to Cs-137 in CVCS mixed bed deborating resins) in accordance with 10 CFR 61.55. During the review period there were no Type B quantity shipments. The information on the shipping papers appears to satisfy NRC, DOT, and burial site requirements.

The total volume of radwaste shipped by the licensee in 1984 (one refueling outage) was 17,400 cubic feet. This represents a continuing trend in volume reduction (23,200 cubic feet in 1983 and 25,500 cubic feet in 1982). Factors contributing to this include: use of containers that permit dewatered resin as a waste form; use of the LVM liners which have less nonuseable space per liner; use of a larger freon type decontamination machine that can also decon hose; trash segregation before collection; and trash segregation after collection.

At the time of the inspection, the licensee was installing and preparing to test a Dry Active Waste (DAW) Segregation/Volume Reduction System developed by Hydro Nuclear Services. The licensee conducted a 10CFR50.59 review for both the waste segregator equipment and its procedures. The system uses state-of-the art waste monitoring and processing equipment including sodium iodide gamma detectors and large surface area, thin window, gas flow proportional counters to detect beta activity. It is uncertain at this time if the segregation methodology/detector sensitivity meets regulatory criteria for detecting activity on items for unrestricted release. This matter was discussed during the exit and will be reviewed during a future inspection. (315/85-06-01; 316/85-06-01)

7. Audits and Appraisals of Radwaste and Transportation Programs

There were no plant QA or INPO audits in these areas in 1984. The last audits by both groups was in 1983 and audits by both groups are planned in 1985. A Nuclear Safety and Design Review Committee (NSDRC) corporate audit entitled "Offsite Dose Calculation Manual (ODCM)-ALARA was performed in May 1984. the audit primarily covered monitors, procedures and procedure implementation, systems used to gather information necessary to determine compliance with technical specifications and ALARA guidelines. Seven corrective action requests were generated all of which appear to have been adequately addressed by the licensee or are in the process of being addressed. None of the findings were indicative of significant programmatic weaknesses.

No problems concerning conduct of the audit program or adequacy of response to findings were noted.

8. Review of Licensee Identified Incidents

The inspector interviewed plant personnel in reviewing condition report C/R No. 12-01-85-068 that is currently being processed by the licensee, involving the failure in early January 1985 to promptly account for and handle SNM material upon receipt of a shipment of two packages each containing a Type A quantity and less than 15 grams of enriched uranium. The packages were exempt from fissile material classification and were transported under the exemption provisions for low level materials per 10CFR71.10. Plant procedures 12 THP.4040.SNM.300 requires that SNM accountable material be promptly accounted for and secured in the controlled area. The current plant stores material receiving procedures do not specify immediate notification requirements or special handling and storage provisions for exempt packages of radioactive materials. As a result, for a several day period following receipt, these packages did not have proper SNM accountability and were stored outside of the protected area but on the plant site in a warehouse under double lock that was checked on routine security rounds. Procedure modifications are in progress regarding exempt packages to preclude recurrence.

The inspector interviewed plant personnel in reviewing condition report C/R No. 2-12-84-2662. A welder who was working in a congested man-hole (a high radiation area) exceeded the administratively established quarterly dose limit of 1000 mrems without obtaining prior approval (the applicable 10 CFR Part 20 quarterly limit is 1250 mrems). The welder's exposure based on the dosimeter results was 1025 mrems. The welder was restricted from further work and the official TLD badge was promptly analyzed which showed the actual accumulated quarterly dose was 875 mrems. The radiation protection technician covering the job had checked the individual's remaining allowable quarterly exposure based on current dosimeter data, inquired as to the time needed to finish welding (15 minutes estimated maximum), surveyed the area, informed worker of survey results, and then observed the activity from a distance. The general area readings and the individual's remaining allowable quarterly exposure showed the welder should have been able to work for a full hour before reaching the administrative exposure limit. After about a half hour the

radiation protection technician asked the worker to check his self-reading dosimeter and was asked to promptly leave the controlled area. A resurvey showed that the general area dose rates had apparently increased about 25 percent over initial survey results. This was not attributable to any specific activity. Actions taken to preclude recurrence included a resurvey of the area prior to resuming work, verify quarterly dose by TLD analysis for those workers nearing the administrative limit before reentering containment, providing continuous radiation protection technician coverage, and cautioning both workers and radiation protection technicians to assure that self-reading dosimeters are checked frequently as is emphasized in radiation protection training.

Licensee corrective actions regarding these incidents appear appropriate.

9. Radiological Review of Licensee Event Reports (LERs)

The inspector reviewed radiological considerations of the following LERs involving monitoring system calibration/setpoint problems or actuations causing purge or ventilation system isolations.

Unit 1 LERs	Unit 2 LERs
84-12	84-03
84-21 (See Section 3)	84-06
84-22 (See Section 3)	84-07
	84-08
	84-10
	84-11

The problems were attributable primarily to software problems with new monitoring equipment (some of which has been corrected); procedural modifications needed for compatibility with new, more sensitive, and more complex monitoring equipment (procedural changes have been made); and personnel error (appropriate corrective measures were taken). All of the above LERs are considered closed except Unit 2 LERs 84-08 and 84-11 where identified monitor software problems have not yet been corrected.

10. Exit Meeting

The inspector met with licensee representatives (denoted in Section 1) at the conclusion of the inspection. The subjects of control room ESF filter housing drain line flow path, main steam line monitor locations and functions, and trash segregator restrictions were discussed in a telephone conversation with Mr. W. Smith, Jr. on March 4, 1985. In response to certain items discussed by the inspector, the licensee:

a. Committed, regarding NUREG-0737, Item II.F.1, Attachment 2, High Range Iodine and Particulate Effluent Sampling System, to heat trace the sample lines by 1987 and to further evaluate representative sampling from the standpoint of sample line losses from deposition/plateout. Also, the licensee plans to evaluate the justification for use of a smaller source term and shorter collection time, and if justified, request relief from NRR as a means of simplifying solutions to remaining problems involving continuous sampling and sample analysis. (Section 3)

b. Acknowledged the inspector's comment that the trash segregator should not be used to screen contaminated items for unrestricted release until clarification is received from the NRC. (Section 6)