



Commonwealth Edison
LaSalle County Nuclear Station
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DCS

June 17, 1994

Mr. James Lieberman
Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Subject: LaSalle County Station Units 1 and 2
Response to Notice of Violations and Payment of Civil Penalty
Inspection Report Nos. 50-373(374)/94004
NRC Docket Numbers 50-373 and 50-374

- References:
1. W. L. Axelson letter to W. P. Murphy, Dated March 21, 1994, Transmitting NRC Inspection Report 50-373/94004; 50-374/94004.
 2. J. B. Martin letter to M. J. Wallace, Dated May 19, 1994, Transmitting the Notice of Violation and Proposed Imposition of Civil Penalty.

Enclosed is LaSalle County Station's response to the subject Notice of Violation and Proposed Imposition of Civil Penalty, including payment of the Civil Penalty. The violations concerned the misuse of byproduct material in the apparent deliberate contamination of radworkers' personal clothing on November 13, 1993 and November 18, 1993, and the collection of a radioactive liquid sample on February 22, 1994, without performing a radiological survey. Our response to these specific violations is included in Attachments A and B. We do not contest your action to classify the violations in the aggregate as a Severity Level III problem, nor do we contest the proposed fine. Accordingly, enclosed is a check in the amount of \$225,000.

These violations underscore the fact that LaSalle personnel have not been successful in developing the appropriate radiological safety culture, values and attitude within the work force. A lack of respect for the radiological hazard has contributed to many workers adopting inconsistent compliance with sound radiological safety practices and procedures. We are committed to establishing and maintaining a culture that understands the radiological risks and demonstrates the appropriate regard for the associated hazard. Included in Attachment C is an overview of our plans to improve the Radiation Protection Program and Radiological Worker Practices, as described in detail in the LaSalle Business Unit Plan. This plan has been previously reviewed with and provided to NRC Region III personnel.

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Mr. James Lieberman

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I understand, as the new Site Vice President of LaSalle County Station, that our performance has been viewed so negatively that a strong regulatory message was believed necessary to get our attention. Let me assure you that the message has been fully received and understood.

ComEd Nuclear Operations Division executives also view these events as being very serious in nature and indicative of relatively poor radiological performance at all of our Boiling Water Reactor sites. As such, a corporate response to this Notice of Violation and Proposed imposition of Civil Penalty will be submitted by the ComEd Senior Vice President and Chief Nuclear Officer to the Region III Administrator.

If there are any questions or comments concerning this letter, please refer them to me at (815) 357-6761, extension 3600.

Respectfully

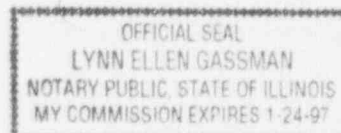


R. E. Querio
Site Vice President
LaSalle County Station

Attachments

cc: J. B. Martin, Regional Administrator, Region III
A. Gody Jr., Project Manager, NRR
D. Hills, Senior Resident Inspector, LaSalle
D. L. Farrar, Nuclear Regulatory Services Manager, NORS
J. E. Lockwood, Regulatory Assurance Supervisor, LaSalle
D. M. Farr, Technical Services Superintendent, LaSalle

*Subscribed and sworn
to before me this
17th day of June, 1994
Lynn Ellen Gassman*



ATTACHMENT A
VIOLATIONS ASSESSED A CIVIL PENALTY
NRC INSPECTION REPORT
50-373/94004; 50-374/94004

VIOLATION 373(374)/94004-01:

License Conditions 2.B.3 and 2.B.4 authorize the licensee, in part, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors, and without restriction to chemical or physical form, for sample analysis or instrumentation calibration or associated with radioactive apparatus or components.

1. Contrary to the above, the licensee failed to ensure that byproduct material was possessed and used in accordance with the specific purposes described in License Conditions 2.B.3 and 2.B.4, in that byproduct material was used to contaminate an individual's clothing on November 13, 1993. (01013)
2. Contrary to the above, the licensee failed to ensure that byproduct material was possessed and used in accordance with the specific purposes described in License Conditions 2.B.3 and 2.B.4, in that byproduct material was used to contaminate an individual's clothing on November 18, 1993. (01023)

VIOLATION 373(374)/94004-02:

10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present.

Pursuant to 10 CFR 20.1003, "survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

10 CFR 20.1201 requires that each licensee control the occupational dose to individuals such that the total effective dose equivalent is limited to 5 rems per year (0.05 Sieverts).

Contrary to the above, on February 22, 1994, the licensee did not make surveys to assure compliance with 10 CFR 20.1201, which limits the total occupational effective dose equivalent of 5 rems per year (0.05 Sieverts). Specifically, a radioactive waste supervisor collected a highly radioactive sample from the Chemical Waste Collection Tank without performing a survey to evaluate the extent of radiation levels and the potential radiological hazards that could be present. (01033)

These violations are categorized in the aggregate as a Severity Level III problem (Supplement IV).

**ATTACHMENT B
RESPONSE TO NOTICE OF VIOLATION
NRC INSPECTION REPORT
50-373/94004;374/94004**

EVENT NARRATIVE AND INVESTIGATION DESCRIPTION FOR VIOLATION 373(374)/94004-01:

On November 13, 1993 a Fuel Handler, assigned to work on the refuel floor, was radiologically contaminated after having changed into the required clothing at the north changing room on the 832 elevation of the Unit 2 reactor building. The Fuel Handler had folded her personal clothing neatly and laid it on top of a bench in the room with a hard hat on top of the clothing stack. Upon completion of the work, the fuel handler exited the floor, removed her protective clothing and performed a whole body frisk at the IPM-7 whole body monitor on the 832 elevation of the reactor building. The fuel handler dressed, and then alarmed the IPM-7 whole body monitor at the service building laundry facility upon exiting the building for lunch. It was determined that the contamination was on the inside of her pants, at the right rear pocket, and measured 5K dpm/100 cm². The contamination was not visible, and after removing the pants the worker still could not clear the monitor. In order to clear the monitor, it was necessary for the worker to remove her underwear and wash the local area. No further actions were taken. This event was not initially documented by the Radiation Protection Technician in attendance. It was later documented as part of the investigation following the second contamination event.

On November 18, 1993, a Radiation Protection Technician (RPT) was assigned to work on the refuel floor. The RPT changed into the protective clothing in the north change room and then folded her personal clothing neatly and laid it on top of the bench in the change room with a hard hat on top of the clothing stack. Upon completion of the work, the RPT exited the floor, removed her protective clothing and performed a whole body frisk on the 832 elevation of the reactor building. The RPT dressed in her personal clothing and then alarmed the IPM-7 at the auxiliary building exit. It was determined that the pants were contaminated on the inside at the left rear pocket. The contaminated area measured 25K dpm/100 cm². She subsequently measured her underwear and it exhibited 4K dpm/100 cm². Her skin did not display any contamination. She washed the contaminated areas of her clothing and exited the Radiologically Posted Area (RPA). Follow-up surveys of the work area and change room found no contamination.

An investigation was initiated to determine how the contamination found its way onto the RPT's clothing. Additionally, the RPT was interviewed by Human Resources management to ascertain the possibility of sexual harassment. None was identified.

Upon learning of the November 13, 1993 occurrence, the investigation was expanded to determine if there had been a deliberate attempt to contaminate radiation workers. ComEd corporate security staff conducted the investigation. Due to the sensitivity of the events, it was necessary to prolong the investigation to ensure all avenues were addressed and no false assumptions were made. Thirty-six people, who were known to be on the refuel floor during the times of the two events, were interviewed. Security personnel concluded that the cause of the event could not be determined. Neither specific person(s) involved nor a possible motive(s) could be identified.

ATTACHMENT B (continued)
RESPONSE TO NOTICE OF VIOLATION
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LaSalle Station reopened the investigation of these two events on March 3, 1994. The focus of the follow-up investigation was to determine, from a Health Physics perspective, if scenarios other than an intentional act could have led to the contamination events. Follow-up interviews were conducted with the principle people involved and a "mock-up" of the events was recreated. Other plausible explanations were found to be possible, however, these investigations did not lead to a more certain or definitive conclusion.

REASON FOR VIOLATION 373(374)/94004-01:

ComEd agrees that the clothing of two workers at LaSalle Station was contaminated on two separate occasions. The events occurred on November 13, 1993 and November 18, 1993. Although investigations following the events have not been able to confirm the root cause of the contamination events, they appear to have been the result of deliberate acts. The station's actions in addressing these events have been carried out assuming that the events were deliberate, and as such, were viewed to be the result of inadequate training, ineffective communications of expectations, and poor radworker practices.

The inquiry involving the first apparent deliberate contamination event (the November 13, 1993 event) was limited and not initially documented. It was only after learning of the second event that ComEd expanded the review and conducted a formal investigation. The associated causal factors include ineffective training for the RP technicians, and an inadequate management response regarding the level of sensitivity and awareness of problem events, including the threshold for taking action.

The final decision on the apparent cause was based on the seriousness of the potential consequences of the events, and corrective actions were based on the assumption that the events were deliberate.

CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED FOR VIOLATION (373(374)/94004-01):

1. The workers and their clothing were decontaminated. After decontamination, the workers were allowed to exit the Radiologically Posted Area (RPA).
2. The workers, whose clothing was contaminated, were interviewed by station management to determine the cause of the contamination events. Corporate security also conducted an extensive investigation. Their investigation included interviews with personnel who were known to be in the same area of the plant at the time the contamination events occurred. Results of these investigations could not determine conclusively the cause of the contamination events. Corrective actions addressing these events have been carried out assuming the events were deliberate.

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CORRECTIVE ACTIONS TO BE TAKEN TO AVOID FURTHER VIOLATIONS (373(374)/94004-01):

1. Corporate security performed additional surveillance activities in the area where the contamination events occurred. The surveillance activities were concluded on December 22, 1993 with no unusual activities being noted.
2. These events were communicated to all workers as a part of the "Kickoff Meetings" for the current Unit 1 refueling outage. As a part of his address, the Station Manager reviewed several events, which appear to have shown elements of willful disregard for adherence to station procedures. Points of emphasis included identification of rules and procedures which apply, personnel safety issues associated with these actions, and station management's resolve to take swift disciplinary action, including termination, for willful acts of wrong-doing.
3. A station memorandum, issued by the LaSalle Site Vice President, was distributed to all station personnel describing the two apparent intentional contamination events. The memorandum emphasized the requirement to comply with all rules and procedures, it stressed the importance of personnel safety issues associated with these types of actions, and station management's resolve to take swift disciplinary action, including termination, for willful acts of wrong-doing.
4. On March 25, 1994, the Station Manager discussed the seriousness of willful acts of wrong-doing with the Event Screening Committee. He emphasized the importance of taking aggressive action when intentional acts are involved. The Station Manager reiterated management's resolve to take swift disciplinary action, including termination, for such incidents.
5. The corrective action process has been upgraded to include a review of events by senior management. Problem events, as reported on the Problem Identification Form (PIF), are reviewed during the daily event screening meeting. This requires that senior management take an active role in the screening and evaluation of problem events so that proper emphasis and problem ownership is assigned on a timely basis.
6. The LaSalle Operations Duty Officers will be provided with instructions to contact station senior management personnel to inform them of events which have the appearance of tampering or willful misconduct. The station senior management personnel will designate staff personnel, along with Site Quality Verification (SQV) representatives who will be involved in the initial investigation phases of these types of events. By lowering management's threshold for taking action when potentially significant problems arise, aggressive and timely investigations will be accomplished.

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7. The Radiation Protection Technician, who failed to document the November 13th event, was verbally counseled by the Radiation Protection Manager. This involved a discussion on the importance of promptly reporting all contamination events. The Radiation Protection Manager also reviewed this event with the entire department, emphasizing the importance of immediately reporting contamination events so that investigations can be initiated in a timely manner.
8. The Radiation Protection Technicians were presented a description of this event with emphasis on the importance of immediately reporting contamination events so that investigations can be initiated in a timely manner in February of 1994.
9. The LaSalle Training Department, with support from Radiation Protection personnel, were tasked with the development of a Radiation Worker (radworker) Expectations Seminar. The Seminar was designed to include all ComEd and Contractor personnel currently on site. The Seminar focused on a case study review of the apparent intentional contamination events, a review of several other radworker practices events, a role-play dealing with conducting ALARA pre-job briefings, and a discussion of both good and bad radworker practices, as generated by the seminar participants. As part of the seminar, the Site Vice President (or the Station Manager) provided his expectations for radworker performance at LaSalle. The expectations were passed out and discussed during the seminar with the attendees, and were presented as a "condition of employment at LaSalle." These seminars were completed on June 14, 1994 for ComEd employees and a significant portion of contractors onsite. The remaining contractors, members of the security force, will attend the seminar or equivalent session as make-up sessions are deemed necessary.
10. LaSalle Station personnel have upgraded the radiation worker qualification process by augmenting the training received with Nuclear General Employee Training (NGET) requalification. Earlier NGET requalification training consisted of self study of radiation protection topics and a review of 10CFR20 changes. Proficiency was demonstrated by performance on a written examination. The augmented training that accompanies NGET requalification focuses on elements to improve radiation worker knowledge and skills. The training includes instruction on radiation protection fundamentals, practices, and procedures. Instructors encourage interaction among the workers and Radiation Protection representatives through questioning techniques. Practical exercises, such as donning and removing protective clothing, simulating work activities in a "mock" contaminated area, and performing personal contamination surveys with hand held frisker simulators (Safe Train RM 14 instruments), were added to the LaSalle retraining in April, 1994. The successful student must not only pass the written examination, but also must demonstrate proficiency during the practical exercises.

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DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED (373(374)/94004-01):

LaSalle Station is in full compliance at this time. The station's radiological performance during the current L1R06 refueling outage (including 90 person-rem of dose savings compared to the L1R06 goal) supports the fact that worker attitudes and practices are showing positive signs of change.

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RESPONSE TO NOTICE OF VIOLATION
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EVENT NARRATIVE AND INVESTIGATION DESCRIPTION FOR VIOLATION 373(374)/94004-02:

On February 22, 1994 during the day (second) shift, a Reactor Water Cleanup Phase Separator High Integrity Container (HIC) was being prepared for shipment in the Radwaste (RW) Truck Bay. This is a standard industry process, with equipment and lineups used previously at LaSalle without incident. During this process, highly radioactive material was transferred to the RW Truck Bay Floor Drain Sump. As a vendor technician walked passed the sump, his electronic dosimeter dose-rate alarm activated. All work in this vicinity was immediately stopped. The Radiation Protection Technician in attendance reviewed and controlled the situation to prevent unnecessary exposure. The area was resurveyed and posted accordingly. Dose rates in the sump area were found to be abnormally high (1R/hr at knee level at the sump separator - these dose rates are normally about 20 mrem/hr). The Radwaste Coordinator and the Radwaste Control Room operator were notified of the unusually high dose-rates.

The Radwaste Coordinator and the Radwaste Shipping Coordinator discussed the elevated dose-rate concern. It was noted that some resin fines routinely pass through HIC filters until a cake is built up on those filters. This effect has resulted in the historically elevated dose rates seen in the radwaste truck bay sump. The belief that the elevated dose rates are normal masked the indications that a failure occurred on the HIC filters. The Radiation Protection Technician allowed work to resume after discussions with Radiation Protection and Radwaste supervision. The sump was sampled to determine the solids concentration. The amount of settled solids appeared to be minimal. However, it was noted that the content of the sample was very cloudy.

During evaluation of the high dose-rates and the cloudiness of the sump contents, it was erroneously concluded that a significant quantity of phase separator material had not been transferred into the radwaste system. Therefore, no immediate corrective action was taken to prevent sump pump down and no communication about the occurrence was made to the oncoming Radwaste Shift Supervisor (RWSS), or to the Chemistry Department. As a result, the Chemical Waste Collector Tank (2WZ01T) contained material which had a concentration of radionuclides abnormally high for plant sample panels (approximately 200 times greater than normal).

During the afternoon (third) shift on February 22, 1994, the Operating Department requested the Chemistry Department to sample the 2WZ01T. A Chemistry Technician attempted to draw a sample, but was unsuccessful in establishing flow at the sample point located at the normal sample panel. He reported the problem to Operating personnel. The afternoon RWSS notified the Chemistry Department of his intentions to clear the sample line and, if successful, draw the sample. The Chemistry Department personnel did not object. The RWSS was successful in establishing sample flow and drew the sample. He transferred custody of the sample to an Operator, instructing him to transport it to the Chemistry Department lab. No radiological survey was performed prior to handling or transporting this sample. To aid in preventing the potential spread of contamination, the operator transported the sample bottle in a rubber glove rather than a

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sample carrier container. This method of transporting potentially contaminated items is not an acceptable practice at LaSalle.

When the Operator approached a frisker near the chemistry lab area, the high count alarm activated. When the Operator and RWSS attempted to use nearby whole-body friskers to exit the RPA the whole body friskers also alarmed. A Radiation Protection Technician in the area was alerted to the alarms and investigated the source. He surveyed the sample and found it to read 2.5 R/hr at two inches. The sample was delivered to the lab and stored in a shielded area.

REASON FOR VIOLATION 373(374)/94004-02:

ComEd agrees that Radwaste personnel collected and transported a highly radioactive sample from the 2WZ01T without performing a survey to evaluate the extent of radiation levels. This individual was not trained or qualified to obtain process samples which contained radionuclides. We also acknowledge that the Radwaste personnel failed to understand the significance of the radiological contents of the radwaste truck bay sump. This act ultimately resulted in allowing a sample to be drawn without exercising prudent radiation safety practices.

The root cause of this event was a lack of appreciation for potential radiological hazards and strict compliance with good radiation safety practices and procedures. The workers involved should have had a heightened awareness and exercised greater caution throughout this entire event. A significant contributing cause of this event was the low sensitivity by the radwaste personnel of the indicating factors of changing radiological conditions prior to the event. Other contributing causes of this event include:

1. The HIC transfer process did not receive adequate review to ensure appropriate controls existed to mitigate potential failures.
2. Perceived pressures to complete processing of the Chemical Waste Collector Tank were apparent. Supervisory methods were deficient in clearly specifying what duties were expected of the workers and that "production" did not take precedence over "safety."
3. Resin "fines" routinely pass through HIC filters until a "cake" is built up on those filters. This effect has resulted in the historically elevated dose rates seen in the radwaste truck bay sump. The belief that the high dose rates are normal masked the indications that a failure occurred on the HIC filters. This led to the decision that the sump dose rates could be considered normal for this evolution. Without the knowledge that a problem had occurred, and the low sensitivity to the warning signs of changing radiological conditions, communications were not initiated between the RWSS and the day shift radwaste personnel.

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RESPONSE TO NOTICE OF VIOLATION
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4. The Radwaste Operator and Chemistry Technician work practices were ineffective in preventing this event from occurring. Additionally, the intent of the Chemistry sampling procedure (LCP-310-02, "Sampling at Process Panels") was not clear. The Chemistry Technicians believed that they were to exercise judgement in determining when to perform radiological surveys while sampling.
5. Personnel were performing actions not considered to be consistent with their job functions. Personnel performed work for which they were not trained and radiological related work was performed without a prior survey.

CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED (373(374)/94004-02):

1. The plugged sample line was back flushed and unplugged.
2. Dose received by the workers involved in this event was determined. Whole body dose was determined to be less than 10 mrem for the entire day for the Operator and RWSS based on electronic dosimetry. The maximum exposed extremity dose was calculated to be less than 400 mrem for the Operator and RWSS.
3. As an interim action, on February 28, 1994, the Chemistry Supervisor issued a policy memorandum for his department. The memo instructed Chemistry personnel to initiate work requests to unplug sample lines which required a connection to be made between clean and potentially contaminated systems.
4. On March 1, 1994, Radwaste personnel were instructed via daily work orders to not take samples or unplug sample lines. Instructions were also given to Radwaste personnel that more clearly defined their job functions and responsibilities regarding sampling procedures.
5. The Chemistry Supervisor held "tailgate sessions" with his department to emphasize their role as being the qualified individuals when taking process samples which contain radionuclides. The Chemistry Technicians were instructed not to allow non-qualified individuals to obtain these types of samples.
6. All station personnel were briefed on the details of this sample event during a Station Standdown meeting which was held on February 25, 1994. During this meeting, the Senior Vice President and Chief Nuclear Officer, along with the LaSalle Site Vice President emphasized the importance of having the appropriate regard for radiological safety and the need to have strict compliance with good radiation safety practices and procedures.

ATTACHMENT B (continued)
RESPONSE TO NOTICE OF VIOLATION
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7. LCP-310-02 ("Sampling at Process Panels") has been revised to require that a survey meter be used to evaluate radiological conditions during sampling of process lines that contain radionuclides.

CORRECTIVE ACTIONS TO BE TAKEN TO AVOID FURTHER VIOLATIONS (373(374)/94004-02):

1. The dewatering processes have been reviewed and steps taken to identify and mitigate equipment failures.
2. The RWSS turnover checklist has been revised. RWSS turnover will address the status of evolutions in the radwaste truck bay. Discussion of the status of these evolutions is required between the Radwaste Shipping Coordinator and the RWSS.
3. The radwaste vendor has modified their containers and changed the handling procedures to significantly lessen the potential for HIC filter failure.
4. A Problem Identification Form (PIF) was initiated to have the System Engineering Department explore options which will help to reduce the number of plugged sample lines in the future.
5. The LaSalle Training Department, with support from Radiation Protection personnel, were tasked with the development of a Radiation Worker (radworker) Expectations Seminar. The Seminar was designed to include all ComEd and Contractor personnel currently on site. The Seminar focused on a case study review of the apparent intentional contamination events, a review of several other radworker practices events, a role-play dealing with conducting ALARA pre-job briefings, and a discussion of both good and bad radworker practices, as generated by the seminar participants. As part of the seminar, the Site Vice President (or the Station Manager) provided his expectations for radworker performance at LaSalle. The expectations were passed out and discussed during the seminar with the attendees, and were presented as a "condition of employment at LaSalle." These seminars were completed on June 14, 1994 for ComEd employees and a significant portion of contractors onsite. The remaining contractors, members of the security force, will attend the seminar or equivalent session as make-up sessions are deemed necessary.
6. The Radwaste Operator Continuing Training Program is being revised to include a description of this event in order to place emphasis on the importance of including a discussion of unusual or changing radiological conditions during supervisor and operator turnovers. This training will also place emphasis on the role of Chemistry Technicians as being the qualified individuals when taking process samples which contain radionuclides. This information will be presented to the Radwaste Operators in the next training module scheduled to be completed by September 16, 1994.

ATTACHMENT B (continued)
RESPONSE TO NOTICE OF VIOLATION
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7. The Chemistry Technician Continuing Training Program has been revised to include a description of this event with emphasis on the importance of ensuring that a survey meter is used to evaluate radiological conditions during sampling of process lines that potentially contain radioactivity. The lesson plan places emphasis on the Chemistry Technicians role of being the qualified individuals when taking process samples which contain radionuclides. This information will be presented to the Chemistry Technicians in the next training module scheduled to be completed by August 31, 1994.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED (373(374)/94004-02):

LaSalle Station was in full compliance by March 31, 1994 when LCP-310-02 was revised to require that a survey meter be available to evaluate radiological conditions during sampling of process lines that contain radionuclides. Additionally, by this date, Chemistry and Radwaste personnel had been informed of the proper method for obtaining samples which contain radionuclides.

ATTACHMENT C
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Radiation Protection

LaSalle Station has a high collective radiation exposure level and has experienced a number of radiation events. These are the result, in pertinent part, of management related issues including low performance standards, an acceptance of poor work practices, and an unfocused effort to reduce the source term. In addition, Radiation Protection (RP) management historically lacked credibility among the work force -- a situation that impeded its ability to effectively and consistently control work. Coupled with Station personnel's lack of a fundamental knowledge and awareness of good radiation work practices, this perception of RP management led to complacency and lax adherence to RP rules and guidelines.

To effectively resolve the Station's RP issues, it is necessary to clarify management expectations for strict adherence to all RP policies, procedures, and instructions; increase radworker understanding of the RP problems at LaSalle; improve ALARA planning practices; and to establish and maintain source term reduction efforts. This goal is being accomplished, in part, through a four step process which involves:

- The Site Vice President and senior management emphasizing to all station personnel the poor radiological performance history that LaSalle has, in comparison to the industry;
- The development of programs focused on upgrading the workforce's knowledge and appreciation of industry best practices;
- Benchmarking the industry to identify and implement best practices for ALARA planning activities; and
- Accelerating source term reduction efforts at LaSalle.

In addition, all managers and supervisors at the Station are responsible for ensuring that their staff personnel are practicing, and held accountable for practicing, the fundamentals of safe radiological work performance on a daily basis. To promote such accountability, a full time monitoring crew has been posted at each Radiologically Posted Area (RPA) access point to verify proper dosimetry, monitor material taken into the RPA, and discuss the requirements of Radiation Work Permits. Further, the number of RPA access points has been reduced from six to two in order to control the amount of materials and tools entering and exiting the RPA. Access to the RPA will be further restricted to one ingress/egress point during non-outages.

The integration of the RP Program into all work group practices requires significant enhancement as evidenced by several events that underscore issues pertaining to LaSalle's RP culture and administration of program requirements. Noteworthy, from a historical perspective, is the fact that the LaSalle RP Department, specifically the RP Technicians, lacks credibility with the LaSalle work force.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

This is due in large part to past RP management, as demonstrated by:

- its autocratic style, and
- the tendency of Senior Station management's production orientation to adversely influence RP practices and procedures.

These factors have inhibited RP Technicians from exercising their stop work authority, have resulted in the transmission of mixed messages to the workers, and have distorted the RP Department's customer service focus. In essence, the Station came to view the RP Department as a barrier to be overcome, instead of a facilitator and necessary part of the work effort.

In addition, Station personnel lack an innate knowledge and awareness of what it means to be a good radiation worker. This is due, in part, to the structure of the Nuclear General Employee Training (NGET) requalification program, which has not lent itself to an RP focus. Individuals have "tested out" without the benefit of formalized training or proficiency testing in RP topics. Basic RP fundamentals, such as the donning and removal of protective clothing and handling of radioactive materials, have not been reinforced through formal training.

Radiation workers are weak in the fundamentals, often are inattentive to detail, show signs of complacency, and at times disregard rules and procedures. In addition, the RP program requires improvement in the areas of Source Term Reduction, radioactive material control, and other programmatic areas outlined below:

- Management and leadership issues, including those listed below, have resulted in declining RP performance at LaSalle Station.
 - Management expectations were not clearly communicated to station personnel;
 - Performance standards were set too low;
 - Supervisors and workers were not held and did not hold themselves accountable for their performance;
 - RP/ALARA resource requirements are not effectively integrated into work planning; and
 - Implementation of a Source Term Reduction program has lacked focus.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

- Radiation workers at times have not adhered to RP procedures. RP procedure adherence was complicated by management expectations governing procedural adherence that were not clearly articulated, and the existence of inappropriately created and structured RP rules.
- Collective radiation exposure at the Station is high. A major contributor to this is the Site's high source term which has not been effectively mitigated through a Source Term Reduction program or the effective use of engineered barriers such as lead shielding.
- Relationships between RP personnel and other departments were weak.
- Relationships between RP Supervisors and bargaining unit personnel have been characterized by a lack of trust.
- Plant processes and controls have not been fully effective in preventing radioactive material from leaving the Radiologically Posted Area (RPA), due in major part to numerous unmonitored egress points.
- Radiological posting controls have not been fully effective. Examples include incorrect radiation area postings, radiation areas not being properly roped off, and incidents involving unlocked high radiation areas.
- Radiological survey maps appear cluttered, contain inconsistent presentation styles, and lack information that would allow workers to easily reference specific plant locations. The existing method of updating survey copies posted for worker use is ineffective.
- The ALARA review process is not consistently applied at the Station. The procedure guidance is too broad.
- RP management has not effectively established work prioritization in the Lead Shielding Program, nor has it accepted ownership of the program. For example:
 - RP personnel reissued numerous lead shielding packages to Site Engineering for evaluation but failed to establish priorities for their review
 - RP personnel did not actively track lead shielding requests that they submitted to Site Engineering to ensure timely evaluation.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Improvement Initiatives and Objectives

The Station's work force must have a fundamental knowledge of good radiation protection work practices in order to foster an excellent radiation worker performance culture. The Station's ALARA and Source Term Reduction programs must be effective and result in above-average performance in controlling radiation exposures. The following objectives will enable LaSalle to achieve these goals.

Improve Leadership and Management

- The Site Vice President and Station Manager have communicated expectations that managers and supervisors will get into the field and personally make certain their people are practicing the fundamentals of safe radiological work performance. Through the Radworker Expectations Seminars, senior management has "made the case" concerning ComEd's poor RP performance in comparison to the industry.
- The Site Vice President and Station Manager have directed to all managers and supervisors that the authority and instructions of the RP staff will not be circumvented.
- The role of the LaSalle Technical Services Superintendent (TSS) has been re-defined. The focus and attention given to radiological issues by the TSS will be significantly increased. This is being accomplished by reducing the TSS scope of responsibility to include only the Radiation Protection and Chemistry Departments. Effective June 6, 1994 the System Engineering Supervisor reports directly to the Station Manager.
- Additional training is being provided to all radworkers which clearly outlines management expectation that radiation rules will be followed to the letter, that responsible radiation protection practices be adopted, and that issues be identified involving rules and procedures that are contrary to ALARA principles.
- Communication channels are being expanded to make workers knowledgeable about radiation rules, standards, and expectations through weekly communication meetings, daily Plan Of the Day (POD) meetings, and event screening meetings.
- A Senior Manager On-Site Program has been implemented that requires Senior Managers and Department Heads to periodically spend a full shift in the plant, including backshift coverage, in order to: (1) coach workers on job activities; (2) monitor performance; and (3) communicate management expectations.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Improve Leadership and Management

- To improve RP support relationships, the Department has adopted a customer service approach. The department will fulfill its radiological safety responsibility in a professional, proactive, facilitative manner. The RP department is planning several trips to better performing sites to benchmark customer service practices at these sites.
 - Short-term actions include meetings and discussions between RP and their customer departments to ensure that needs have been clearly identified.
 - In response to workers' concerns, RP personnel have begun wearing purple hard hats when in the plant to increase their visibility and thereby improve their accessibility to personnel in the field.
 - RP department personnel will be provided customer service training. Interpersonal communication skills such as clarification, confirmation and discussion techniques, as well as managing differences are key elements contained in one of the courses to be implemented this year at LaSalle.
- An INPO RP Manager is on site for four months to provide: (1) input on improving RP culture; and (2) a detailed review of the RP program, procedures, RP survey maps, postings, boundaries, and RP work practices.
- The Station Manager has implemented a policy to ensure accountability for poor radworker performance (personal review of significant radiological incidents and personnel contamination events with the worker, supervisor, and RP Staff).
- The 1994 Station goals have been included as fifty percent of management's individual performance ratings. Individuals will be held accountable for Station radiation exposure performance as part of this process.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Worker Knowledge and Accountability

- The emphasis on intra-departmental communications is being increased at the Station.
 - RP ALARA supervisors have been assigned to key work areas such as operations and Maintenance.
 - RP Department representatives attend weekly communication sessions with the line organization in order to facilitate understanding and involvement with Radworker Practice issues.
 - An RP representative is assigned to the L1R06 "Work Control Center."
 - RP has implemented an in-plant zone coverage concept. This concept involves RPTs who are located on station in one of seven zones in the plant to provide oversight and direction for radworker activities being conducted in these areas.
- Refresher radiation training modules (Radworker Seminars) are being conducted for both contractor and Station personnel to reinforce management's expectations regarding the adherence to radiation procedures and to refresh personnel on proper radworker practices and techniques.
 - This training is expected to improve radiation worker awareness and techniques for reducing personal exposure, avoid poor practices, and foster a greater understanding of requirements.
 - It focuses on individual accountability for following the rules and applying good ALARA practices.
 - It emphasizes the importance of adherence to RP procedures as a condition of employment.
- To promote supervisor accountability, monitoring crews at each Radiologically Posted Area (RPA) access point have been stationed full time to verify proper dosimetry, monitor material taken into the RPA and to discuss the requirements of their Radiation Work Permit (RWP). Those in violation of rules will not be allowed access to the RPA and their names will be logged, along with their supervisor's name, and forwarded to Radiation Protection Management for trending and follow-up action.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Techniques, Process, Procedures and Radworker Practices Improvement Initiatives

- The Station ALARA committee has been restructured (monthly meetings are chaired by the Maintenance Superintendent and include both management and bargaining unit members). The Station ALARA Committee works with Station Departments in ALARA goal setting, monitors progress toward goal achievement, and reviews key jobs from an exposure control perspective.
- An ALARA dose budgeting process is being implemented at the Station, through the Station ALARA committee and the Station RP ALARA group. For example, the Station ALARA Committee (SAC) will establish a "Stretch Goal" and action leads for key jobs.
- Radioactive material control will be improved at the Station.
 - The Radiologically Posted Area (RPA) has been redefined and ingress and egress limited from six to two points during outages and one during non-outage periods.
 - The entrance to the RPA has been restructured to better control the flow of personnel entering and exiting the area.
 - The Station is pursuing control of the amount of material and tools exiting the RPA by implementing a centralized tool storage facility within the RPA.
 - In the meantime, efforts are underway to communicate the importance of reducing the use of unnecessary tools in the RPA.
- Radiological postings at the Station are being improved, the RPA has been re-surveyed to identify both high and low dose rate areas and many postings have already been changed or added.
- The station is experimenting with a pilot program which uses a motion detector and a strobe light to alert workers when they are in the vicinity of a "hot spot".
- Control of High Radiation Areas is being improved.
 - The Station currently is evaluating options for improved methods of worker access to high radiation areas. Information from other Stations is being acquired to aid in the assessment.
 - The number of routine required accesses is being reduced through surveillance frequency reduction and remote monitoring.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

- The marking and labelling of high radiation areas will enhance worker knowledge of control requirements. Under consideration are swing gates with audible alarms and enhanced visual aids such as lights or signs with fluorescent colors.
- A thorough review of the entire radiological work planning process is underway. Benchmarking of the industry's best performing plants will be conducted to review pre-planning, pre-job briefings, field execution, post job reviews, lessons learned documentation, and utilization.
- LaSalle will be implementing a new access control system, which will replace the current access tracking system and provide:
 - direct communication to radiation workers; and
 - the ability to lockout access for key requirements that have not been fulfilled.
- The RP Department is reviewing practices, procedures, and the Radiation Work Permit (RWP) program for improvements to make them simpler and more user friendly while maintaining high standards of performance. When the reviews are completed and the changes are made, Station personnel will be trained on the changes and improvements.
- Radiological surveys will be improved by:
 - improving the timeliness by which changes to posted surveys are made and including a provision for needed survey updates;
 - upgrading the standard for radiological survey quality and the survey review process; and
 - improving the presentation quality of survey maps.
- A comprehensive Lead Shielding program is being established by RP to include replacement of temporary lead shielding with permanent installations where appropriate.
- The work package ALARA review evaluates requests to determine the feasibility of permanent installation, as well as tracking and controlling the removal of temporary or permanent installations.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Dose and Inventory Reduction

- Over a dozen areas of localized elevated dose rates have been reduced during the L1R06 outage. These "hot spots" contribute to plant general access area dose rates and increase worker exposure. Approximately fifteen person-rem of savings has been attributed to the L1R06 hot spot reduction campaign. The remaining hot spots (there are 235 total) have been identified, prioritized, and plans to eliminate specific spots will continue to be implemented through the remainder of the L1R06 refueling outage and beyond. Elimination/reduction of these hot spots is expected to generate another 50 person-rem of savings for LaSalle.
- Chemical decontamination of the reactor recirculation system piping has been performed at the Station during the L1R06 refueling outage. This resulted in the removal of 84 curies and a dose saving estimated at 200 person-rem. L1R06 Contact Decontamination Factors of 2 to 3.5 and general area Decontamination Factors of 8 to 12 were achieved.
- Chemical decontamination of the reactor recirculation system will be performed in L2R06, for an estimated 200 person-rem of savings..
- Chemical decontamination of the Residual Heat Removal (RHR) and reactor water cleanup (RWCU) systems currently are being planned for L2R06 and L1R07. This would result in an additional 35 person-rem savings per unit.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Dose and Inventory Reduction

- Elimination of the reactor cavity crud trap currently is scheduled for L2R06 and L1R07. This is estimated to result in a savings of approximately 3 person-rem.
- Reactor vessel nozzle flush was completed on Unit One during L1R06 and is scheduled to be completed during L2R06.
- The ECCS injection line will be monitored and flushed to reduce dose rates for scheduled outage work activities.

Optimized Water Chemistry

Depleted zinc injection will be implemented to reduce primary system dose rates. Zinc changes the piping corrosion layer and competes with radioactive cobalt in the layer.

- Unit-1 temporary zinc injection skid was operational prior to the start of the L1R06 outage.
- The passive zinc injection system was installed on Unit-1 during the refueling outage.
- Unit-2 temporary zinc injection skid will be operational two months prior to the L2R06 outage.
- The passive zinc injection system will be installed on Unit-2 during the L2R06 outage.
- The need to perform chemical decontamination of primary systems will be evaluated for each outage. Depleted zinc injection will substantially reduce the rate of system recontamination. It is expected that chemical decontamination of the reactor recirculation system, for example, will be performed approximately every seventh refueling cycle after zinc injection is initiated.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Source Term Reduction

A technical expert has been assigned to be the Source Term Administrator. The Source Term Reduction effort will be focused on removal of materials that, when activated in the reactor core, contribute to station radiation exposure. This effort will:

- define roles and responsibilities of personnel involved in Source Term Reduction efforts;
- communicate Source Term Reduction program requirements to all Station departments;
- perform an annual assessment of Source Term Reduction program effectiveness;
- replace 15 Control Rod Blades with non-stellite blades during L1R06 (complete). All future blade replacements will be non-stellite; and
- administer the valve replacement program, based upon cobalt release rates. Valves are prioritized into three categories.
 - Priority I valves have been determined to be the principal cobalt contributors. Priority I valves will be replaced with non-stellite components whenever valve maintenance or plant modification warrants. Parts for Priority I valves will either be stocked on the shelf or will be ordered if lead times are sufficiently short.
 - Priority II valves contribute to the plant cobalt concentration to a lesser degree and are not in the main flow of the reactor coolant system. Replacement of these valves is done on a case by case basis and parts are not normally stocked for these valves.
 - Priority III valves are not wetted by the primary coolant system. There are no plans to replace priority III valves with non-stellite components.

ATTACHMENT C (continued)
OVERVIEW OF LASALLE BUSINESS UNIT PLAN INITIATIVES
RADIATION WORKER AND RADIATION PROTECTION PROGRAM IMPROVEMENTS

Technology/Engineering Controls

- The Station will be conducting benchmarking tours of industry leaders to determine how to most effectively expand the use of proven technologies, such as:
 - wireless remote monitors,
 - video cameras, and
 - alarming continuous air monitors.
- The station is looking at a more extensive use of permanent lead shielding which will be used to decrease dose rates for specific areas of the plant. This will also result in improved materiel condition.
- A new RPA access control system will be implemented in 1994-1995 and will replace the current dose/personnel access tracking system. The new system will allow for communication to individual workers or groups and will provide access lockout for key requirements that are not fulfilled.