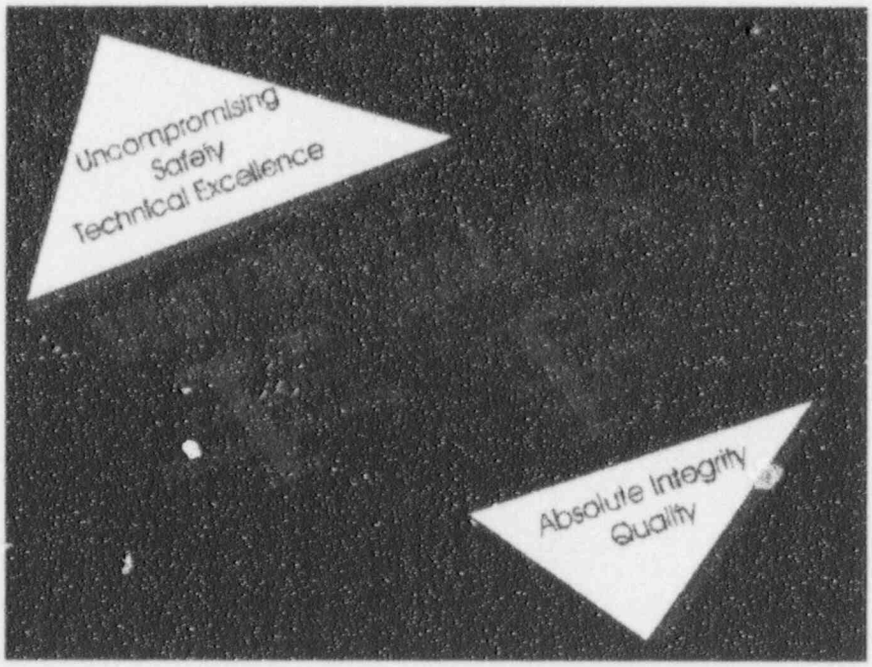
LaSalle Nuclear Power Station

Course of Action
Progress Report

May 1995



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MEMORANDUM

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Date: May 3, 1995

To: LaSalle Station Direct Reports to the Station Manager and to the Site Vice President

From: for R. E. Querio

The attached Progress Report on the Course of Action is issued in order that all concerned parties receive our authoritative summary of progress to date on our three year plan to achieve sustained improvement in performance at LaSalle Station.

This is the first progress report on the Course of Action since it was issued in May 1994. Periodic progress reports will follow, the next one is planned near the end of 1995 to update progress on the Course of Action achieved through the implementation of the 1995 Annual Plan.

CES/rl

Attachment

COURSE OF ACTION PROGRESS REPORT
May 1994 to May 1995

Table of Contents

1.0 Executive Summary

The Course of Action (COA), previously the BUP Management Overview, was issued as a three-year program focused on resolution of issues identified by an assessment and comprehensive review of station performance. The LaSalle Business Unit Plan was developed by Station management with discrete adaptable action plans that served as the working-level document through which Station personnel were held accountable for necessary improvement actions. The COA outlines the key issues addressed by the BUP and summarizes the activities that are being taken to resolve LaSalle's performance issues and reverse the station's declining performance trend. Although other issues are addressed in the BUP and it's corresponding action plans, the COA focuses on those issues which are most significant to addressing the performance trend.

The LaSalle COA was implemented in 1994 via selected focus areas termed Near-Term Initiatives. Based on management review in early 1995 of progress toward the objectives in the COA, we concluded that there was not sufficiently clear direction in all areas to successfully achieve the goals of the COA. As a result, we have revised our implementing action plans for 1995 (1995 Annual Plan). These plans describe the actions that will be taken in 1995 to accomplish the objectives of the COA in eight focus areas, and now include detailed, discrete action steps with individual completion dates and clear accountability for completion of the actions. The action plans clearly identify the objectives of these activities and their relationship to the COA issues and objectives. Each of the eight focus areas in the 1995 Annual Plan includes performance measures to be used in evaluating progress toward completion, and has a sponsoring senior manager to provide overall leadership in its completion.

The eight focus areas of the 1995 Annual Plan are as follows:

Materiel Condition
Radiation Protection
Issues Management
Management and Leadership
Training Improvement
Outage Performance
Technical Support Performance
Operations Performance

This report describes the progress in the eight areas of the 1995 Annual Plan. Since the 1994 COA was issued two new focus areas have been added, Outage Performance and Training Improvement. These two new areas were identified as key to the station's improved performance in 1995. The Maintenance and Workforce Management areas from the COA continue to be important and were merged into the Materiel Condition and Issues Management focus areas respectively.

Significant progress has been made on the COA in the year since the improvement plan was first initiated. The specific improvements are discussed in Section 2 of this report. Some of the most recent improvements follow in this summary.

- The Management and Leadership focus area is of prime importance. We recognize that management weaknesses have been a major contributor to the performance problems experienced at LaSalle. We have been assembling an improved senior management team which will be capable of directing and completing the improvement objectives in the LaSalle COA, and continuing and sustaining improvement over the longer term.

  - Senior management changes since 1994 have included the Site Vice President, Station Manager, Operations Manager, Maintenance Superintendent, Radiological Protection Manager, Chemistry Supervisor, Site Engineering Manager, Systems Engineering Manager, and Support Services Director. Selected senior management positions are being filled with personnel from outside of the ComEd system, bringing a broader industry perspective to LaSalle. We will continue to make improvements to our management team as warranted to ensure our performance improvements are realized and sustained.

  - LaSalle senior management team members and licensed operations personnel participated in a Conservative Decision Making Seminar. This seminar was led by the BWR Vice President and the three BWR Site Vice Presidents. During the sessions the Vice Presidents communicated their expectations regarding the proper conservative decision making process. This seminar was designed to foster a thought process to ensure that a conservative approach to safety is foremost in all operational decisions.

- Operating experience in 1994 emphasized the need for improvements in Materiel Condition. A number of unplanned outages occurred that were primarily the result of plant materiel condition. To assist Operations in leading the materiel condition improvement effort a new position was created, Plant Operations Superintendent. Additionally particular attention has been focused within Work Control on materiel condition items, including forced outage preplanning, the success of which was recently demonstrated in the forced outage of Unit 1 in February 1995. The following is a summary of selected items that have been accomplished to date:

- The EHC system on Unit 2 has had a history of numerous leaks and in 1994 experienced a vibration induced fatigue hydraulic piping failure that led to a reactor scram. New EHC supports were added to improve stability and minimize the fatigue possibility on both units. System leaks were repaired and new Fuller's Earth filters were installed to eliminate a chronic recurring leak on the old filter housings.

- A digital control system (Lovejoy) has been installed on the Unit 2 Turbine Driven Reactor Feed Pumps to improve reliability of Reactor Water Level Control (RWLC).

- During 1994, Unit 1 was forced to shutdown due to a failed condenser boot and subsequent loss of condenser vacuum. An improved boot material has been installed on all three condenser hoods on both units.

- Power derates have been experienced due to condensate and condensate booster pump availability. To improve pump reliability, a comprehensive approach to inspection and repair of system components has been implemented over the past several months on all pumps including gear boxes, coupling alignments, grounding components, pump alignment, pump shafts, lubrication and threaded joints.

- Numerous long-standing equipment problems were eliminated on Unit 2 during the current refuel outage (L2R06). Included are replacement of outboard MSIV solenoid valves with valves of a better design, replacement of the Reactor Protection System Motor Generator Set feed breakers to allow starting the M/G set without tripping the breakers, replacement of MSIV limit switches, and completion of testing and modifications to motor operated valves required by Generic Letter 89-10.

- Prior to L2R06, the unit experienced degraded reactor water chemistry problems due to condenser tube leaks resulting from scale buildup and microbiologically induced corrosion (MIC). Eddy current and leak testing after extensive condenser cleaning identified 213 degraded tubes which were plugged.

- Open work requests are being prioritized by System Engineering in cooperation with Maintenance and Operating. This effort includes consideration of importance to the safety and reliability of the units, the age of the work requests, and confirmation that the proposed work item is still valid. 2000 open work requests, which is 90 percent of the total open work requests, have been prioritized enabling better scheduling of work while the unit is on-line.

- System Engineering is conducting more thorough walkdowns of plant systems and has lowered the threshold of deficiency identification. The current focus is on important safety and reliability systems (approximately 40) on Unit 2 and will be followed by conducting walkdowns on Unit 1 systems.

• Substantive improvements have been achieved in Radiation Protection including:

- Radiation Protection personnel have assumed assignments in other organizations within the plant in order to heighten their presence in the plant. In L2R06 an RP technician acted as Drywell Coordinator lending an increased focus to radiation work practices during outage execution.

- Improvements in the control of contamination include the establishment of a single ingress/egress point from the RPA, the placement of portal monitors at this exit, more conservative setpoints on the IPM-7 personnel contamination monitors and the use of small article monitors. No radioactive material control incidents have occurred since September 1994.

- Several activities have resulted in reduction of the radiation source term. The chemical decontamination of the RHR System during L2R06 resulted in dose rate reductions by a factor of two to eight. This resulted in an estimated 70 person-rem savings for maintenance activities in L2R06. For example, work on the RHR full flow test valve was completed with a dose savings of 8 Rem when compared to similar work in previous outages. L2R06 Recirculation System decontamination efforts removed 91 curies, resulting in a dose reduction by a factor of about 2.5. Aggressive system flushes and hydrolazing efforts to reduce general area dose rates are ongoing.

- Implementation of depleted zinc injection on Unit 1 proved successful in maintaining dose rates in the Unit 1 drywell at a reduced level. Mid-cycle surveys on Unit 1 Reactor Recirculation Piping indicate no substantial increase in dose rates from L1R06 post chemical decontamination levels. Zinc injection will commence on Unit 2 at the end of L2R06.

- Important programmatic changes have been made in the Issues Management program. Monthly assessment meetings are conducted by the Vice President with all departments, with the objective to emphasize the importance of self-assessment activities, and to identify adverse trends in station activities requiring near-term corrective actions.

- Activities are underway in the area of Training to improve line management ownership of program content, correct deficiencies in On the Job Training and Training Performance Evaluation (OJT/TPE) performance and provide enhancement of the self evaluation process.

  - Several seminars/workshops have been held for managers to communicate their roles and responsibilities for training and provide managers with increased knowledge of the training process.

  - Training Advisory Committees are chaired by the appropriate Department Head.

  - A Senior Training Council (STC) has been established to provide management oversight of training programs.

  - Training Performance indicators were revised to improve the information available to the Training Advisory Committees and the Senior Training Council. These performance indicators are an important input to identify corrective actions for the training program.

  - A training benchmarking visit has been completed to the Duane Arnold Station to review improvements made to their training programs. Several good practices were identified, including use of a Training Identification Form (TIF) to track all training requests. We are in the process of implementing these lessons learned.

- Several changes have been made to improve work management and Outage Performance. This will ensure that work items are completed in order of priority, and that work is accomplished more effectively and efficiently. Improvements have been realized in work completion rates as a result of the following initiatives:

- A Work Control Center (WCC) was implemented in September 1994, and includes personnel from Maintenance, Operations, Work Control, Engineering, and Radiation Protection. The ComEd Electronic Work Control System (EWCS) has been implemented. Improvements in the areas of work planning, work execution, and use of the WCC and EWCS during L2R06 resulted in fuel load being 16 days earlier than the previous two outages.

- A single point of contact (SPOC) for all outage related questions has been established. The individual in this position is easily accessible and the position is manned continuously for the duration of the outage.

- The role of shift outage director (SOD) has been expanded to include 24-hour monitoring of outage related jobs in the field, and to facilitate activities necessary to maintain the outage work flow. Both the SPOC and SOD concepts were identified during a benchmarking trip to Limerick Station.

Senior management holds periodic accountability meetings which are beginning to improve communications and teamwork at the senior manager level. The accountability meetings are designed to force the station to deal with issues and confront problems head-on.

We are committed to continue this record of progress in 1995. Actions to meet COA activities planned for 1995 are contained in the 1995 Annual Plan and will be statused in the next progress report scheduled for early 1996.

2.0

STATUS OF THE COA BY FOCUS AREAS

2.1 MATERIEL CONDITION (COA 3)

2.1.1 Improve Overall Plant Materiel Condition (COA 3.B.1)

- The following equipment problems, some of which were long-standing, have been corrected since the beginning of 1995. The corrected equipment problems have been organized by system to allow better focus on the system improvements.

Nuclear Steam Supply Systems

Reactor Recirculation (RR)

- Reactor Recirculation pump seals have historically needed to be replaced every fuel cycle and on occasion during mid-cycle. Neither units' pump seals required replacement during cycle 6 of operation. As a precautionary measure, the 2A and 2B pump seals were replaced during L2R06.

- Repaired Unit 2 RR Pump Discharge Valve (67A). The repairs consisted of applying stellite hard face to the valve disc angel face guides and opening clearances between guides and the disc to prevent galling. Other design change (non-stellite) options are being evaluated for the remaining RR pump discharge valves.

- High Temperature cables for LVDTs were installed on the Reactor Recirculation HPUs for Flow Control Valve on Unit 2B.

- Manufactured and installed an electronic filter which cleans up the vibration signal to improve the monitoring of reactor recirculating pumps and motors.

- Completed Unit 2A Flow Control Valve Actuator Changeout with an improved, redesigned (Ortman Miller) actuator.

- Conducted Unit 2A & B Hydraulic Power Unit (HPU) Refurbishment.

Main Steam (MS)

- Previous design deficiencies of the MSIV limit switches have resulted in a high limit switch failure rate and increased frequency of MSIV testing. Newly designed limit switches were installed during L2R06.

- Outboard MSIVs have had new Valcor solenoids installed. (In place of ASCO solenoids which degrade at high temperatures due to lubricant hardening). Inboard MSIVs were maintained in their current configuration with repairs of current style solenoid valves, if the outboard installation is successful then the inboard will be changed in L2R07.

- "A" Main Steam line inboard MSIV (MS22A) was completely rebuilt due to out of specification leak test results..

Reactor Core Isolation Cooling (RCIC)

- General materiel condition problems with the RCIC System have contributed high RCIC System unavailability on both units. During L2R06, several repairs have been completed (listed below). In L1R07, these same repairs are planned, unless noted otherwise.

  - Installed steam supply drain pot Magnetrol level switch to upgrade to better designed switch. (Now installed on both units)

  - Installed a step to protect the drain line from traffic damage. (Now installed on both units)

  - Replaced oil temperature switch.

  - Rerouted sample sink drain line input.

  - Replaced steam admission valve (45).

  - Installed flanges in exhaust pot drain line for flushing.

  - Governor valve shaft replaced.

  - Oil system flushed.

  - Repaired RCIC turbine trip/throttle valve reset.

  - Installed RCIC initiation time delay mod.

  - Accomplished drain line flush spool installation.

Residual Heat Removal (RHR)

- The problem with the 2B RHR Full Flow Test Valve (2E12-F024B) was eliminated as a work-around by lowering the stroke time to within acceptable limits for Low Pressure Coolant Injection (LPCI) initiation time.

- Scheduled maintenance was performed to replace the U-2 RHR Water Leg Pump Discharge Check Valves.

High Pressure Core Spray (HPCS)

- Replaced Unit 2 HPCS Water Leg Pump due to failed bearings.

Low Pressure Core Spray (LPCS)

- Corrective maintenance was performed to eliminate motor oil leaks on the U-2 LPCS system.

Reactor Protection System (RP)

- Due to high vibration readings, the flywheel bearing on 2A and 2B M/G sets was replaced. Recent vibration readings have been acceptable.

- The U-2 RPS MG Set feed breakers were replaced to allow starting the M/G set without tripping the breakers. This upgrade eliminates a long-standing equipment work-around.

Source Term Reduction Program (L2R06 Actions)

- Several significant items have been completed that will result in reduced radiation exposure.
  - Reactor Recirculation (RR) system decon.
  - Residual Heat Removal (RH) system decon.
  - Hydrolazed reactor drain and vent lines 1RE06A and 1RE05A.
  - Various other lines have been hydrolazed prior to and during L2R06 providing significant general area dose reductions.
  - The permanent Zinc Injection skid was installed.

- In general, the chemical decontamination of the RHR System during L2R06 resulted in dose rate reductions from 40-100 mR/hour to dose rates of 5-40 mR/hour. This resulted in significant person rem savings for maintenance activities in L2R06. For example, work on the RHR full flow test valve was completed with a dose savings of 8 Rem when compared to similar work in previous outages. L2R06 Recirculation system decontamination efforts removed 91 curies, resulting in an average dose reduction of 40-200 mR/hour to 20-70 mR/hour. Aggressive system flushes and hydrolazing efforts to reduce general area dose rates are ongoing.

Motor Operated Valve Generic Letter 89-10 Issues

- All 89-10 Generic letter commitments will be completed on U-2 by the end of L2R06. Of the 268 valves in the program, all static VOTES testing has been completed.
  - 63 Static VOTES tests were performed.
  - 30 Dynamic VOTES tests were performed.
  - 37 Motor Operator upgrade mods were performed.
  - Seven valves were modified to address pressure lock considerations.

Battery & DC Distribution (DC)

- Several Unit 2 battery post seals were repaired as a result of previous issues on the Unit 1 batteries.

Diesel Generator (DG)

- Preventive maintenance and additional corrective maintenance was performed during L2R06.
  - 2A DG oil leaks were repaired.
  - 2A DG cooling water pump seal leak was repaired.
  - Installed HACR Relay mod on 0 DG to facilitate manual synchronization of the generator to the 141Y or 241Y bus.
  - Repaired oil leaks on 1DG08DA DG Air Dryer. (long-standing equipment problem)

MATERIEL CONDITION IMPROVEMENTS

Nuclear Systems

Control Rod Drive (CRD)

- Implemented a program for replacement of SCRAM Solenoid Pilot Valves (SSPV) with new VITON valves. 137 HCUs, (75% of Unit 2 valves) have been replaced during L2R06. Fifty percent of Unit 1 valves will be replaced during L1R07. The remainder of the valves will be replaced during L2R07 and L1R08 respectively.

  After these next 3 refueling outages, both units will have 100% VITON valves. Due to the increase in lifetime of these valves, once replacement is complete, continued replacement can be reduced to approximately 10% per outage as compared to 25% previously. Not only will this reduce outage time, but limit the potential impact of a generic issue on valve degradation. Part of this installation also involved installing flexible air-line hosing, which has turned out to be a real time/dose saver, as installation time has been drastically cut.

- Several preventive and corrective maintenance issues were performed on the following CRD equipment during L2R06:

  - Replaced 22 Control Rod Drive mechanisms.
  - Repaired 3 HCU Scram Discharge Volume Isolation valves (2C11-D001-112).
  - Repaired/Replaced 2 Charging Water Check Valves (2C11-D001-115).
  - Repaired 3 HCU Charging Water Isolation Valves (2C11-D001-113).
  - Replaced 1 HCU Insert Line Manual Isolation Valve (2C11-D001-101).
  - Replaced two leaking pipe Tees on the scram air header for Unit 2.
  - Repaired Limit Switch Indication on the Flow Control Valve (2C11-F002B).
  - Repaired Packing Leak on the Pressure Control Valve (2C11-F003).
  - Replaced CRD Pump (2C11-C001B) Gear Box due to pitting and knicking indications found during inspection.

- 24 SCRAM Discharge Volume Isolation (2C11-D001-112) valves were inspected for stem to disc cracking (GE SIL 419).

- Inspected the 2C11-F014A/B Pump Discharge Check Valves.

- Replaced SCRAM Air Header Filter and inspected regulator.

- Several design improvements were made to the CRD system on Unit 2 during L2R06:

  - Installed flexible hoses on the newly installed Scram Solenoid Pilot Valves.

  - Installed new CRD Flow Bypass Line to eliminate a low flow condition on CRD pump.

  - Performed design change to the SCRAM Discharge Volume Vent and Drain Valves to allow them to meet ASME seat leakage criteria.

  - Replaced the CRD pump (2C11-C001B) with new stainless steel casing pump.

Traversing Incore Probes (TIP)

- A 1 second time delay exempt change is scheduled to be installed on 5/15/95 on the TIP system reverse logic. This change should drastically reduce the number of aborted TIP traces.

- Installed quick disconnects on TIP tubing to speed up maintenance and reduce dose during future maintenance activities.

Reactor Recirculation Interlock

- The Low Flow Feedwater Interlock for the Reactor Recirculation system downshift and upshift permissive was lowered to 20% (2.83 Mlbs/hr) on Unit 1 during the last forced outage, and was completed on Unit 2 during the refuel outage. This allows increased maneuverability within the stability region, and minimizes RR pump vibrations on a plant shutdown. The change will also minimize time between placing the heaters on and increasing core thermal power to prevent damage to the water drain system emergency drains.

Low Power Range Monitor

- A SRM/IRM preregulator was designed which will reduce system noise and improve reliability. This is an issue at many BWRs throughout the industry. Currently the new preregulator design is going through TRC with plans to implement by year end.

- Replaced the 2A SRM detector.

Control Rod Position Indicator (PI)

- Several corrective and preventive maintenance activities were conducted during L2R06:

  - Repaired 7 Position Indicator Probes.

  - Repaired the connectors on 10 Drives.

  - Replaced 2 Probe Multiplexer Cards.

MATERIEL CONDITION IMPROVEMENTS

Balance of Plant Systems

Main Turbine/Generator (TG)

- Conducted required PM on the Main Generator Disassembly/6 Year inspections. Inspection of the retaining rings on the TG rotor were satisfactory. Inspections did reveal two leaks on the stator cooling system which were corrected.

- Conducted Turbine Valve Disassembly and Inspection (5) (1 Turbine Stop Valve (TSV), 1 Turbine Check Valve (TCV), 2 Combined Intermediate Valve (CIVs), 1 Bypass Valve (BPV). Normal wear was observed as a result of the inspections.

- Designed a special washer to be used on the main generator links to hold them in place better and to give them better contact. Removed all iron containing washers and bolts to reduce hot spots on the generator links. Removed the gasket on the covers of the links which will remove the remaining hot spots.

- Refurbished leaking hydrogen seals on the main generator. Replaced a failing hydrogen seal oil pump. Oil leaks on the hydrogen seal oil skid were corrected.

- Filtered all the turbine oil on Unit 2 to better than the General Electric and the general delivery oil specifications.

Nuclear Boiler (NB)

- A problem with spurious Reactor Water Level Alarms on Wide Range (WR) instruments was correctedon both Divisions 1 and 2 of Unit 1. An extensive root cause determination related the spurious alarms to a Fuel Zone (FZ) reference leg reroute modification which had been installed during the last outage on both units to connect the FZ transmitter to the reference leg and condensing pot of the Post-LOCA (RVWLIS) condensing pots. Frequent, spurious low reactor water alarms resulted from harmonic noise being amplified through a new reference leg connection, from the RR system (via the Jet Pump RPV taps) to the Fuel Zone transmitters up the reference leg to the WR transmitters. The problem was solved by a design change which added time delay relays to the annunciator circuits to prevent the short duration spurious alarms. The design change has been installed and tested satisfactorily on Unit 1 and will be installed on Unit 2 during May of 1995.

Heater Drain (HD)

- Took action to repair Heater Bay steam leaks as follows:
  - ISI inspections revealed several carbon steel reducers that exhibited indications of erosion that resulted in 6 being cut out and replaced, eliminating the possibility of leaks during the cycle.
  - During L2R06, 127 Air Operated Valves were disassembled, inspected, repaired, and flow scanned.
  - During L2R06, 53 Check Valves were inspected and/or repaired.
- Actions to reduce FW heater emergency drain valve failures:
  - Most of the drain valve failures were corrected as a result of the AOV testing and repair program.
  - FW Heaters were also opened and eddy current tested to establish baseline information on system materiel condition.
- The heater drain pump forward valves 2HD-045A/B/C were upgraded to stop the stem to disc separation. This upgrade consisted of six internal valve changes. This has been a long-standing problem which included a failure on Unit 2 several months prior to shutting down for L2R06.
- A 3-foot by 6-inch piece of steel was removed from the heater drain tank This foreign material had apparently been in the tank for a long time.
- All the capscrews that hold the lower diaphragm cover to the yolk on the emergency heater drain valves (2HD-053A/B/C, 2HD-056A/B/C, and 2HD-059A/B) were replaced. These Masoneilan valves are for the 24A/B/C, 25A/B/C, and 26A/B heaters, respectively. Also verified that the capscrews are tight on all other Masoneilan valves that have been worked during L2R06. This capscrew has loosened or broken in the past on other Masoneilan valves including 1HD-053A and 1HD-059B which failed on the start-up of Unit 1 within this last cycle.

Main Condenser

- New boots have been installed on the Unit 2 main condenser. These boots are constructed of a new and improved material which is expected to improve their longevity and performance.

- Completed aggressive action to prevent and correct condenser tube leaks:

  - Two hundred thirteen leaking or defective tubes were identified and plugged in the Unit 2 condenser.

  - Seventy five percent of the Unit 2 main condenser tubes were cleaned during the L2R06 refueling outage. Over 5000 pounds of calcium carbonate was removed (predominately from the top 1/3 of the condenser) during the evolution.

  - Twenty percent of the Unit 2 condenseer was tested focusing on the areas of the condenser where previous problems had occurred.

Zinc Injection

- The permanent zinc injection skid (passive skid) has been installed to reduce the amount of Co-60 in the iron oxide corrosion layers of the recirculation piping. This reduction in Co-60 will reduce the dose rates in the drywell area.

Condensate Booster

- The condensate booster minimum flow valves (2CB-018A/B/D) and actuators were rebuilt during L2R06. The 2CB-018C was rebuilt during L2R05. The control instrumentation for these valves was also rebuilt. The control loops for the CB minimum flow valves have been calibrated on the A/B/D valves. The C valve requires new parts, which are on order and will arrive in June.

- Action to eliminate Condensate and Condensate Booster (CD/CB) gearbox and pump casing degradation was implemented, including:

  - A methodical inspection and repair program.

  - Emphasized alignment of components following repairs to eliminate maintenance induced potential vibration problems.

    Investigated speed increaser gear deterioration. Possible root causes include axial and radial loadings, due to improper operation of the pumps and circulating electric currents due to various motor grounds. Took action to improve grounding and insulation monitoring during reassembly of the motor and gearbox couplings. As a result of operational guidance developed by Engineering, Operations changed the manner in which CD/CB pumps were operated to minimize pump wear at low flow conditions.

- Resolved lube oil leaks through improved pre-maintenance walkdowns. Discovered that the gasket material being used was not compatible with synthetic lube oil. New materials were then researched and a compatible material, Garlock "Gylon", is now being used. This information was confirmed through the investigation performed by the "Rework Committee."

- There are 2 CD/CB pumps scheduled for overhaul later this year.

Turbine Electrohydraulic Control (EHC)

- New style EHC Fuller's Earth filters have been installed on Unit 2 during L2R06.

- Twelve leaking EHC fittings on Unit 2 were inspected and repaired.

- Performed PMs on all Unit 2 EHC cabinets and replaced all light bulbs in the entire control system.

- EHC system supports were inspected with several new supports being added to improve the stability of the system.

- During the Unit 2 EHC ground isolation checks, several connector to shield grounds were identified on the vibration probe amphenol connectors. These grounds had been a long-standing problem causing floating grounds in EHC.

Turbine Driven Reactor Feed Pump (TDRFP)

- The TDRFP Lovejoy Turbine Control modification was installed with a newer technological upgrade. A similar Lovejoy Turbine Control modification was installed on Unit 1 during L1R06.

Auxiliary Power/Main Power

- An inspection of System Auxiliary Transformer (SAT) and bus ducts was conducted. In the bus ducts, several discrepancies were found and corrected including one hole that required sealing, cracked insulators, some foreign material, and outside, several bowed covers due to freezing damage.
- Added additional protective relays to the Unit Auxiliary Transformer (UAT)/SAT Relay Scheme to upgrade the system to industry standards..
- Replaced SAT/UAT Oil Pumps on Unit 1. The Unit 2 UAT will be done during L2R06 (current outage) and the Unit 2 SAT will be done during L2R07.
- Conducted MPT Gasket Replacement (2E and 2W).
- Completed 243, 241Y, and 252 Bus Outages (Clean/Inspect/PM).
- Both Main Power Transformers have had the staged cooling modification installed this outage.
- Installed new/improved combustible gas monitor for the 2E Main Power Transformer.
- Prepared and preserved Main Power Transformers to restore them to "like-new" condition.

MATERIEL CONDITION IMPROVEMENT

Common Systems

Off Gas (OG)

- The OG Glycol Refrigeration Machine's compressor discharge line had previously experienced line breaks due to high vibration. This caused freon leaks and required removing the machine from service for repairs. A support was added to the discharge line to reduce vibration, and there have been no subsequent freon leaks.

Containment Monitoring (Post-Loca Hydrogen/Oxygen Panels) (CM)

- The flowmeters have been replaced as a partial upgrade to these Containment Monitoring panels. This has made it possible to achieve a more accurate calibration.

Reactor Building Ventilation (VR)

- Several improvements have been made to the VR secondary containment isolation dampers to aid in the ease of future maintenance. Additionally, stronger springs have been added to these dampers to improve performance. This completes actions to address an NRC Notice of Violation for past damper failures, and has allowed the station to remove the dampers from an accelerated IST testing frequency.

Primary Containment Vent and Purge (VQ)

- The VQ026/027 valves were rebuilt following LLRT failures. On the inner flange of the 27 valve, which has a double O-ring seal, O-ring retaining grooves were noted on both flange surfaces. A scope addition was completed to return this surface to the design condition. Also noted during this work was that the O-rings were held in place by a sealing compound (RTV), which may have blocked the LLRT test port for these seals. A PIF and an Operability Assessment were generated, and investigation into the cause and long-term actions is being conducted.

Control Room Ventilation (VC)

- It was determined through vibration monitoring that a problem existed with the "B" VC supply fan motor. Since this motor is not normally accessible, it was necessary to disassemble system ductwork for inspection. It was found that one of the bearings was damaged, and the motor was replaced.

- The VC ammonia detectors have historically been high maintenance items. A replacement detector was procured and installed to evaluate long-term replacement and no maintenance was required over approximately four months. A presentation was made to the TRC, and a modification has been approved for permanent replacement of the detectors.

Primary Containment Ventilation (VP)

- An inspection of the 2B VP chiller revealed that a section of the shell had corroded below ASME minimum wall thickness. A weld repair program was developed and implemented to bring the shell back to code.

- An upgrade was completed on the 2A VP chiller oil reservoir temperature switch to install a well. This eliminates the need to pump the reservoir down for calibrations, and allows the performance of online maintenance without affecting chiller availability.

- Dampers supplying the RR pump and undervessel areas have been replaced by manual locking devices. This closes a long-standing temporary alteration and eliminates repetitive maintenance activities on failed dampers.

Turbine Building Ventilation (VT)

Several corrective maintenance NWRs were completed on VT as described below:

- The 2A VT Exhaust Fan blades were replaced.

- The 2C VT Supply Fan motor was removed and replaced.

Radwaste Ventilation (VW)

- A new compressor for the IRSF Building HVAC system was installed.

Technical Support Center Ventilation (TS)

- Repaired Compressor Oil Heater and the motor master for the condenser fan motor control.

Fire Protection (FP)

- Thermo-Lag fireproofing material was originally installed on safety-related cable trays at LaSalle. Tests conducted by several utilities and the NRC had determined that this material was inadequate as a fire barrier for these cable trays, and a plan to replace the Thermo-Lag material was prepared. A testing program for the replacement Darmatt material was developed and subsequently completed, and all of the Thermo-Lag material has been removed and replaced.

Drywell Instrument Nitrogen System (IN)

- Before and during L2R06, the U-2 IN system was completely walked down to identify leakage. Numerous leaks were identified and repaired. This will reduce compressor loading and result in improved IN system reliability due to reduced cycling of the compressors.

Service Air (SA) and Instrument Air (IA)

- It was discovered that the SA receiver moisture traps were incorrectly piped, which could reduce their effectiveness and potentially allow moisture carryover into the SA and IA systems. Repiping has been completed on the common unit air receiver, and action requests are outstanding on the other system receivers.

- The SA compressors are being used as a test case for the Lube Oil Reduction Team (part of the Rework Committee) to reduce or eliminate lubrication leaks in the station. Numerous sealants have been tested in this field application, and teflon tape is being used on an experimental basis. This effort is ongoing, and will ultimately result in reduced oil leakage from installed plant equipment.

Process Radiation Monitoring (PR)

- The Standby Gas (VG) System Wide Range Gas Monitors have had recurring problems with moisture accumulation. A change was completed to continuously add a small amount of Service Air purge to the VG exhaust to prevent the sample lines from filling with water.

Station Heat Recovery (SH)

- A glycol drain line on one of the SH pump skids was cleared. This line had allowed glycol to spill from the skid onto the surrounding floor, creating both a housekeeping concern and the potential for glycol to be routed to other floor drain/radwaste systems.

MATERIEL CONDITION IMPROVEMENTS

Auxiliary Systems

Fuel Pool Cooling (FC)

- 1B Fuel Pool Emergency Makeup pump was successfully run for the first time in months. A soft foot condition was identified and bolting adjusted to reduce pump vibration.

- Repaired Filter Demineralizer "A" drain isolation (2FC058A) - 10 gpm leakby, another long-standing equipment problem.

Reactor Water Cleanup (RWCU)

- Completed total repack of Motor Operated RWCU Suction Header Stop Valve (2G33-F102).

- Many minor maintenance/PM items, affecting both units and all six filter/demins, were completed on filter demin manual valves.

Process Sample (PS)

- Installed new conductivity instruments and flow cells on three of four local sample panels. Fourth panel to be completed after L2R06.

- Flushing capability installed on 0PL31J to backflush radwaste sample lines. Installed modification and successfully prevented plugged sample lines.

Condensate Polisher (CP)/Demineralizer

- Completed a suitability evaluation for a new actuator on the CP drain valves. The new actuator is intended to resolve sticking valves and very slow opening times.

Circulating Water (CW)

- 2C CW pump inspection and repairs.

- The 1A CW pump and motor overhaul is in progress. This completes overhauls on all Unit 1 CW pumps. (1B and 1C were overhauled in 1994) (2A was overhauled in 1994. 2B and 2C are scheduled for 1996)

- Finalized the design for sodium bromide and hypochlorite injection into Circ Water. When completed, this will help keep the main condensers from further attack by MIC and improve thermal efficiency The treatment will inhibit the growth of zebra mussels also.

- Implementing action plan to fix CW pump gland water pressure problem.

- Plugged 213 Unit 2 Main Condenser Tubes per leak testing and eddy current results.

Reactor Building Equipment Drains (RE) and Reactor Building Floor Drains (RF)

- Removed foreign material from the DWEDS and DWFDS sumps.

Solid Radwaste Reprocessing/Disposal (WX)

- Continuing repairs to "B" Concentrator Waste Tank, overcoming cracks forming during the repair welding with assistance of SMAD.

- Improved attention to the radwaste equipment has lead to better operations of the IRSF cranes and facility.

- The new DAW Storage facility has been designed and will be ready for service by June 1, 1995.

- Installation of sludge level indication instrumentation for RWCU Phase Separators to be completed this year.

Radwaste Laundry/Floor Drains (WY)

- Completed long pending WY Process System hard pipe mod for RW laundry equipment.

Chemical Radwaste Processing (WZ)

- Developed plan of action to resolve the issue of sludge in the WZ Process Tank by connecting to an alternate processing skid.

Radwaste Drains (DR) and Turbine Building Equipment Drains (TE)

- Long-standing Radwaste Sump Pump repair completed for 2DR01PB for the Radwaste Truck Bay, as well as 1TE02PA Turbine Building Equipment Drains sump.

Domestic Water (WD)

- Repaired domestic water to Aux Building/Service Building isolation valve leak - long-standing equipment problem.

Equipment Drain (WE)

- Currently investigating installing non-precoatable septa in the WE Filter Demins. This will eliminate radwaste generated from precoats. In the interim, the Operating procedures for precoat are being modified to improve precoat performance.

Floor Drain (WF)

- Elimination of evaporators is in progress.
  - Bid specs for vendor processing systems have been issued.
  - Design work for routing piping from collectors to Vendor System has been initiated.
  - This pipe routing will resolve the Top 5 WZ Sludge Removal issue.

MATERIEL CONDITION IMPROVEMENTS

General

Suppression Pool Cleanup

- Removed foreign materiel from Unit 2 Suppression Pool and ECCS Suction Strainers. The cleaning and inspection activities that took place during this evoluation were thorough and effective in removing foreign material accumulated in the suppression pool which would prevent any of the ECCS Suction Strainers from performing their required function.

Air Operated Valve Program

- During L2R06 approximately 130 air operated valves were scheduled for maintenance to improve the valves materiel conditions. The work involved upgrading or replacing the various soft wear (i.e., gaskets, diaphragms, O-rings, packing) within the air set regulators, positioners, boosters, control panels, actuators and valve bodies.

- Unit 1 results are listed below and we expect to see the same performance on Unit 2.

  - 12 Megawatt Electric Increase:
    By increasing the Heater Drain System efficiency the flow requirements from CD/CB system were reduced.

  - Condensate Flow Requirements Reduction:
    By increasing the Heater Drain System efficiency the flow requirements from CD/CB system were reduced.

  - Check Valve Failures:
    During L1R04 and L1R05 various Heater Drain check valves (i.e., 1HD021A/B, 1HD036A/B/C) were found with excessive hinge pin/bushing wear caused by downstream air operated isolation valves. Each of the isolation valves were disassembled and repaired increasing the seat leakage classification to Class IV. The Class IV seat leakage requirement provided adequate shut off capability to prevent the hinge pin/bushing wear from recurring in the upstream check valves.

- Cooling Lake Temperature Reduction:
  Each of the Heater Drain air operated isolation valves discharging to the condenser were repaired increasing the seat leakage classification to Class IV. This not only increased the Heater Drain System's thermal cycle efficiency, but reduced the cooling lake temperatures. During 1994 neither Unit 1 or Unit 2 were derated due to the cooling lake temperatures.

- ALARA Cost Reduction:
  Based on improving the overall condition of the Heater Bay air operated valves, there have been less on-line or forced outage repairs associated with air operated valves since L1R06.

The ISI-SIP Program

- During L2R06 the ISI-SIP Program contributed to the materiel condition improvement of LaSalle as follows:

  - The following system's piping and associated supports were inspected:
    1) Auxiliary Steam System (AS) - 2 supports examined.
    2) Condensate Booster System (CB) - 74 supports examined.
    3) Condensate System (CD) - 44 supports examined.
    4) Cycled Condensate (CY) - 1 support examined.
    5) Extraction Steam System (ES) - 43 supports examined.
    6) Feedwater System (FW) - 9 supports examined.
    7) Gland Seal Steam (GS) - 23 supports examined.
    8) Heater Drain System (HD) - 143 supports examined.
    9) Main Steam System (MS) - 247 supports examined.
    10) Primary Containment Purge (VQ) - 12 supports examined.

- Result of the Inspections:

  - 108 Engineering Requests were generated to resolve discrepancies ranging from minor differences between the design drawing and the actual installation to supports being installed or not being installed as required by the analytical design drawings.

  - 38 Action Requests were generated to resolve discrepancies ranging from loose nuts and bolts to totally missing or non-functional supports.

IST Materiel Condition Improvement

- Main Steam (MS09) Snubbers:

  - During L1R05 and L2R05 the mechanical snubbers (manufactured by PSA) located on the MS09 subsystem (non-safety related balance of plant) were reduced from approximately 100 to 35. Those PSA mechanical snubbers which remained were replaced with Lisega hydraulic snubbers. This was done as an attempt to address concerns that the mechanical snubbers installed on MS09 subsystem (Class D/D + piping, non-safety related) were not handling the wear and tear of this constantly vibrating system. These concerns were validated when several of the removed mechanical snubbers were unable to stroke or were not deemed fully operable.

  - Prior to the installation of these design changes, no functional testing of MS09 snubbers was performed. Since installation, a sample of the MS09 hydraulic snubbers have been functionally testing during refuel. During L1R06, all four snubbers tested passed the functional test and during L2R06 the three snubbers tested passed the functional test. Thus the early indication is that this new type of snubber is better suited for its environment.

Main Steam Safety/Relief Valves

- Main Steam Safety/Relief Valves have had a history of leaking to the suppression pool. This has caused frequent inoperability of one loop of RHR (LPCI) so that loop may be used in the suppression pool cooling mode (especially in the summer).

- Two major actions were taken. First, the GE spec for the SRVs states that the as-left leakage should be <35 ml. This meant that the valves were being installed with pre-existing leakage paths which only got worse during the cycle. LaSalle has since changed this requirement to have <1 ml of as-left leakage. Second, it was determined that the startup test LOS-MS-R2 was damaging the valve seats (and thus causing leakage) by lifting the SRVs and then letting them slam closed under spring pressure. The station now cycles the valves during condition 4 and soft seats the valves with the actuator thus maintaining the integrity of the seats. The results of these efforts have been excellent. Presently Unit 1 has only 1 leaking SRV in almost 1 year since last refuel and Unit 2 had no leaking SRVs entering L2R06.

Pressure Testing Program

- During L1R06 and L2R06 the remainder of the 10 year ASME Class 1, 2, and 3 systems have either been walked down at normal operating pressure or have been pressurized using a hydro pump and walked down.

- These walkdowns are specifically looking for through wall leakage but many valves have been discovered with packing leaks and internal seat leakage. Action Requests are submitted to fix these leaks. In addition, for the systems that are pressurized with a pump, boundary valves are used for the testing that normally are not pressure stressed at all such as the pump discharge isolation valves for Class III systems. By closing these normally open valves and pressurizing against them, valve seat leakage has been found that is not normally local leak rate tested. Action requests/work requests have been submitted for this repair of these boundary valves. The pressure testing program has resulted in finding valves that are leaking by internally. In this respect, the pressure testing program has identified valves for repair. Consequently, the materiel condition of the plant has been improved as these valves are fixed.

Reactor Vessel Internals - Reactor Core Shroud Ultrasonic Inspection

- In view of current industry developments concerning the materiel condition of Boiling Water Reactor Core Shrouds, and because of the shroud's fundamental importance to safety, LaSalle County Station completed an Ultrasonic examination of its shroud during L2R06. No problems were identified.

2.1.2 Improve Resource Utilization on Materiel Conditions (COA 3.B.2)

- Enhancements to the work planning process have been made which include:

  - Work bundling, the assembly of work on specific systems or components, improvements to reduce unnecessary repetitive equipment out-of-service. This activity greatly decreases the radiation dose received by operations and improved manpower utilization.

  - Implemented Work Control Center Improvements, based on lessons learned and best practices for management of the eight week schedule preparation process and support for operations work planning.

- Developed and implemented Work Control Center performance indicators. (COA 3.B.2 and 6.B.3.b)

2.1.3 Improve Technical Support (COA 3.B.3)

- A Senior System Engineer is an engineer with advanced training and experience with plant systems/components who, in addition to performing System Engineering responsibilities, acts as a mentor and facilitator to other System Engineers for their development and growth within the department. These engineers have had a positive impact on their assigned systems and on the overall performance of the department. This is due not only to the technical talent they bring to the department and the positive influence they have on the younger system engineers. LaSalle currently has five Senior System Engineers with additional ones planned for the future. (COA 3.B.3.b)

2.1.4 Reduce the Number of Temporary System Changes (COA 3.B.4)

- A Temporary System Change (TSC) Coordinator has been designated. The number of temporary alterations (formally termed TSCs) has been reduced from 58 in May of 1994 to 35 in February 1995. An increase to 63 temporary alterations was experienced in March due to outage related activities.

2.1.5 Improve Maintenance Work Practices (COA 3.B.5)

- Maintenance pre and post job briefings have been reviewed and revised. Departmental expectations with respect to use of pre and post job briefs were communicated. Further improvements will be made as identified. An outside assessment of the process was conducted and no concerns were identified. (COA 3.B.5, 6.B.4 and 6.B.6.b)

- A Root Cause Team which focuses on Materiel Condition problems was formed in February 1994. The expected capabilities include: High standards for observation of Initial Conditions, Root Cause Processes, and Specific Technical Knowledge such as appearance of materials after certain failure modes. The System Engineering RCA specialist is responsible for assisting system engineers in identifying root causes of equipment failures and recommending corrective actions. Additional training for departmental Root Cause Analysis will be given onsite in June and July. (COA 3.B.5 and 6.B.5)

2.1.6 Improve Equipment Reliability (COA 3.B.6)

- The Materiel Condition Group of System Engineering is reviewing Preventive Maintenance (PM) programs on major system components with the System Engineers. The Materiel Condition Group has formed an alliance with the Maintenance Staff equipment specialists to facilitate these reviews. Currently, large pumps are being reviewed. The information obtained during these reviews will be used to adjust existing PM programs to ensure the proper PMs are being performed. Targeted components later in 1995 include 480V circuit breakers, fans, relief valves, and heat exchangers.

- The Corrective Action Team was formed in the fall of 1993 and replaced by the Consolidated Facilities Maintenance (CFM) Group in July 1994. This group has and is continuing to correct deficiencies in the plant relating to, housekeeping as well as routine minor maintenance items. The Work Control Center and CFM review action requests daily to identify work which can be completed effectively without initiating a work request.

- A computerized engineering tracking system was implemented in the Spring of 1994 for both Station Support and System Engineering Departments. The database contains issues assigned to engineers with vital information such as priorities, due dates, and periodic reviews/updates. The system provides the ability to track status of issues and document activities. It has improved the management of engineering resources and led to quality documentation of issues, resource allocation, and results. (COA 3.B.6)

2.1.7 Improve Materiel Condition of Equipment (COA 6.B.1)

- System Engineering has instituted a program to review all outstanding Work Requests and prioritize them as either high, medium, or low. The data from this review is stored in a database that is accessible to the System Engineering, Operations, Work Control, and Maintenance departments. New Work Requests are continually updated by the System Engineers. Approximately 2000 work requests, representing 90% of the total, have been prioritized. (COA 6.B.1.a and 3.B.1.f)

2.1.8 Improve Work Control (COA 6.B.2)

- The permanent Work Control Center (WCC) was established upon completion of the remodeling effort. The location of the individuals within the center was arranged to facilitate ease of communication and rapid response to change, i.e., all the maintenance schedulers sit together in a specific area of the WCC and Out-of-Service (OOS) writers are located next to the OOS Writer's Supervisor. (COA 6.B.2)

2.1.9 Implement the Maintenance Strategy (COA 6.B.3)

- A Performance Centered Maintenance initiative was started late March 1995 as a Nuclear Division effort to improve the six Nuclear Station Preventive Maintenance Program.

  - The six Nuclear sites are developing a modified RCM - Reliability Centered Maintenance Process, called Performance Centered Maintenance (PCM) to be utilized across all ComEd Nuclear Stations.

2.1.10 Improve Maintenance Work Instructions (COA 6.B.4)

- Work packages have been standardized throughout the system per the Work Control Initiative. Additionally station procedures and maintenance department memos have been revised to give the Work Analyst guidance on package preparation and contents. (COA 6.B.4 and 5)

2.1.11 Improve Worker Abilities (COA 6.B.5)

- A minor maintenance program has been initiated. The response has been positive in that the workers welcome the opportunity to achieve visible results without undue administrative process delays. Worker response has increased involvement and suggestions for increasing the programs effectiveness. (COA 6.B.5)

- Maintenance Supervisors are provided with a list of qualified personnel to perform the task identified on the NWR as part of the Electronic Work Control System. Additionally, the supervisors have a list of individual qualifications that they use to determine the appropriate job assignment (Maintenance Memo #12, Training Matrix). (COA 6.B.5.a)

2.1.12 Improve Maintenance Work Practices (COA 6.B.6)

- The Maintenance Departments have established performance indicators which measure individual performance and trends. The indicators are used to evaluate the success of the Department. The expectations and standards are clearly understood. Expectations are communicated to groups on a continuous basis. Department goals are advertised maintenance work areas. Each management and bargaining unit individual has performance appraisals which are the primary method of communicating expectations. Also, daily morning updates and weekly department tailgates reinforce policy and set forth direction as necessary to maintain station requirements. Additionally, periodic meetings with the Site VP are conducted with the entire station to keep proper focus on the station's direction. (COA 3.B.5 and 6.B.6.c)

- The Storeroom opened a second service window inside the RPA. While organizing this project, many in-plant problems were uncovered including expired shelf life, oil issuance and storage, and chemical control in the plant. With input from the other departments, many process improvements were developed.

- A First Hit Team was established in the Electrical Maintenance Department. Since their startup the team has closed 32 out of 45 action requests before they became work requests. A similar team will be established in the Mechanical Maintenance Department.

- The Consolidated Facilities Maintenance Department is improving their efficiency. In January the group averaged 107 tasks complete per week. In February that had increased to 162 tasks per week. March averaged 210 tasks per week, and in April they were averaging 398 tasks per week. This is a noteworthy accomplishment since these two months were peak L2R06 outage months.

- The Instrument Maintenance Department has established a one man "hit team" concept in the Control Room. Since March 1, 1995 the hit team has addressed 57 tasks at the action request level, of which 46 were repaired on-the-spot.

2.2 RAD WORKER PRACTICES (COA 2 - Radiation Protection)

2.2.1 Improve Leadership and Management (COA 2.B.1)

- Several actions have taken place to address the issues in the area of Leadership and Management within the Radiation Protection area.

  - Senior Management has communicated expectations to plant personnel that safe radiological performance is an integral part of the successful completion of work. Supervisors are expected to monitor worker performance in the field. These expectations were communicated to each person through Radworker Expectations seminars presented by the Site Vice President (SVP) or Station Manager.

  - The Radiation Protection (RP) Department has enhanced its standing within the organization through team sessions with other Departments. For example, Radiation Protection and Operations personnel meet on a weekly basis to discuss radiological concerns. These meetings have led to many improvements in Radiation Protection policies and practices. Additionally, Radiation Protection personnel have assumed roles outside of their previously defined job scope in order to heighten their presence in the plant. During the L2R06 Refueling Outage, an RP Technician acted as Drywell Coordinator, lending an increased focus to radiation work practices during outage planning.

  - Teambuilding sessions, communications training, and customer focus classes were held for all Radiation Protection Technicians.

  - INPO Management was on site for much of 1994 to provide input on improving the RP culture at the station. This input led to several improvements in radiological posting and survey techniques. Radworker Seminars for all ComEd workers were held for the purpose of enforcing SVP and Station Manager expectations.

2.2.2 Worker Knowledge and Accountability (COA 2.B.2)

- RP presence in the Work Control Center has led to early input into the planning process. This has resulted in improved identification of radiation worker concerns and a higher level of worker performance.

- All workers were required to attend a Rad Worker training session during their NGET requalification in 1994 and early 1995. This replaced the previous policy of allowing workers to "test out" of the requal training. This class focused on hands-on training with the use of mockups to simulate actual plant conditions and increase worker sensitivity to radiological problems. The feedback from plant workers on the use of mockups for and simulated radiation area problems has been very positive and has contributed to the improvements in radiation worker performance.

2.2.3 Radiation Protection Program Improvements (COA 2.B.3)

- The unplanned release of radioactive materials from the RPA has been stopped, with no incidents since September of 1994. Improvements include the establishment of only one exit from the RPA, the placement of portal monitors at this exit, more conservative setpoints in the IPM-7 personnel contamination monitors, the use of small article monitors, and increased controls relative to eating and drinking in the RPA. Control of tools has been improved by the implementation of a consolidated tool facility inside the RPA. Additionally, the establishment of a satellite Consumable Material Stores area inside the RPA has greatly reduced the need to take consumable material in and out of the RPA.

- Radiological postings have been improved. Low dose walkways have been identified in the Reactor Building, and overposted high radiation areas have been eliminated.

- LaSalle has implemented a new computer RPA access control system which also provides direct communication to workers on radiological issues. The system also has the ability to lock out personnel who have not complied with good radiological work practices.

- Progress has been made in the reduction of routine required access occurrences into high radiation areas, with pilot programs going on in Security and Chemistry. The Operations Department has initiated similar actions through their routine meetings with the Radiation Protection Department.

2.2.4 Dose Reduction (COA 2.B.4)

- A key to minimizing exposure to plant workers is the reduction of the Station's radioactive source term. Aggressive action will continue through 1995 to evaluate and implement cost efficient methods of removing contributors to the general area dose rates throughout the plant.

- The following significant Source Term Reduction activities have been completed to date:

  - Completion of chemical decontamination of Unit 2 Reactor Recirculation Piping in support of L2R06.

  - Completion of chemical decontamination of Unit 2 RHR Piping.

  - Installation of a permanent zinc injection skid on Units 1 and 2.

  - Scram Discharge Volume Hydrolaze on Unit 2 during L2R06.

- The annual dose goal for 1994 was reduced from 865 to 750 person-rem. Actual exposure was 727 Rem. The 1995 goal of 550 rem is challenging, but it is our intent to achieve this goal and demonstrate improved station performance.

- Dose reduction techniques were included in the planning for L2R06, including state of the art video equipment for drywell activities, with the capability to observe drywell work and perform pre-job briefings with monitoring capability in the Administration Building.

- Depleted zinc injection on Unit 1 proved successful in maintaining dose rates in the Unit 1 drywell at a reduced level. Mid-cycle surveys on the Unit 1 Recirculation Piping indicate no substantial increase in dose rates from L1R06 outage post chem-decon levels.

- Zinc injection will commence on Unit 2 during startup following the L2R06 refuel outage..

- Many hot spots have been hydrolazed or flushed to reduce general area dose rates.

2.3 ISSUE MANAGEMENT (COA 4)

2.3.1 Improve Issue Prioritization and Resource Allocation Processes (COA 4.B.1)

- An Event Screening Committee (ESC) was formed to ensure the review of all new Problem Identification Forms. The ESC meeting, under the guidance and example of the Station Manager, has matured to a level which has enabled selected Department Heads to administer the ESC in their review of new PIFs. The new ESC staff is being evaluated for effectiveness and additional improvements.

- A Technical Review Committee was formed to review all emerging technical issues and industry commitments. This committee is meeting routinely to ensure activities approved are technically sound solutions to identified problems. (COA 4.B.1.6)

- A Business Review Committee has been formed in order to approve significant site-wide business decisions. The committee also meets to approve expenditures which exceed $100,000. (COA 4.B.1.b)

- An ad hoc working group was formed to develop a new commitment tracking system. They have evaluated the options and an interim solution is being implemented. (COA 4.B.1.b)

2.3.2 Improve the Awareness and Utilization of the IRP Process for Problem Identification (COA 4.B.2)

- Corrective Action System users were interviewed to determine customer concerns and problems so that local issues are adequately addressed.

- The Problem Identification Form (PIF) and instructions are being restructured to further simplify the ability to report issues, events, and deficiencies which will result in a more "user friendly" process. The administration of the PIF process will be controlled electronically, thus enabling the initiator to concentrate on the issue, not the process. (COA 4.B.2.a)

- The Event Screening Committee has been restructured to empower knowledgeable line management with the authority and ability to commit to (and achieve) realistic actions to resolve issues and prevent their recurrence. (COA 4.B.2.b)

2.3.3 Improve Root Cause Analysis and Trending Process (COA 4.B.3)

- System Engineering has established Root Cause Analysis engineers who specialize on performing root cause analysis on materiel condition problems.

- Recently, a new department, Corrective Actions and Improvements (CA & I) was created. CA & I has responsibility for performance monitoring, problem identification and classification, root cause analysis, and corrective action tracking processes. Currently, the CA & I root cause group is undergoing initial staffing. The RCA group will be Root Cause Analysis process experts, who assist, support and monitor line departments conducting root cause analysis.

2.3.4 Develop and Implement Self-Assessment Processes (COA 4.B.4)

- A Corrective Action & Improvement Director position has been established at the Station. This individual will assist line management in developing effective self-assessment techniques and processes in their areas of responsibility. (COA 4.B.4.a)

- The Enterprise Information System serves to assist management self assessment. The data input to this computer database is used in monthly assessment meetings, and is incorporated into the bimonthly report (COA 4.B.4.b)

- Monthly Assessment meetings, chaired by the Site Vice President, Station Manager, and Corrective Action and Improvement Director are conducted with all departments in attendance. 50% of the departments present their performance per meeting and the SQV Director provides an assessment of the presentations. Union participation is encouraged and First Line Supervisors have begun to give portions of the presentations. These Monthly Assessment meetings are the formal station process for department level self-assessment. The meetings serve the following purposes:

  - to discuss adverse trends and to identify trends before they become significant;

- to discuss corrective action effectiveness and timeliness;

- to identify obstacles that need to be resolved in order to enhance the station's ability to maintain steady performance and improvements; and

- to promote a self-assessment attitude across the entire station. (COA 4.B.4.c)

- The LaSalle Site Quality Verification (QV) Integrated Analysis process evaluates internal and external performance indicators and publishes the results in a bi-monthly Independent Consultation Report. This process will be automated and enhanced to provide the station with current, real time trend analysis.

2.3.5 Define Expectations, Responsibility, and Accountability for Corrective Actions (COA 4.B.5)

- Implementation of corrective actions are aggressively pursued at the Station. The station has performed at a zero or near zero overdue corrective action implementation rate since October 1994. (COA 4.B.5.a)

  - Overdue action items are being discussed by the Station Manager, Site Engineering Manager, and Services Director with their direct reports on a periodic basis.

  - Overdue action items are published in a weekly report and discussed at the Plan of the Day meeting with department representatives.

- A report was developed by the Corrective Actions and Improvements staff to inform management in following up on corrective actions completion. The report includes an evaluation of both aging commitments, as well as the number of times Corrective Action due dates are postponed. (COA 4.B.5.d)

- The Site Vice President and Station Manager have jointly set formal expectations for all of their direct reports regarding the timeliness of corrective actions. (COA 4.B.5.e)

- The LaSalle County Station Quality Verification Escalation to Management of Declining Corrective Action Policy was presented and accepted by station management in November 1993. This policy was exercised on a small number of very significant deficiencies during the first part of 1994. With support from the present station management, these deficiencies are now under control and progressing towards effective closure. (COA 4.B.5.f)

2.3.6 Improve Station Responsiveness to QV Findings (COA 4.B.6)

- The Roles and Responsibilities of Station organizations for the resolution of QV issues have been defined and communicated by Station Management. The issue of Station responsiveness to QV findings continues to be acceptably resolved. There have been no overdue QV identified issues since January 1994. (COA 4.B.6.a)

- QV identified issues will be incorporated into the Station's Integrated Reporting Program in May 1995 to ensure that QV issues are adequately defined, reviewed, evaluated, prioritized, corrected, trended, and closed. (COA 4.B.6.b)

- QV generated deficiencies (Findings and Unresolved Items) are being incorporated into the enhanced PIF process to be piloted in QV and Chemistry in May 1995. (COA 4.B.6)

- An initial independent assessment and follow-up of station responsiveness to QV issues was conducted in April and December 1994, respectively. The results indicated stated that the station was responsive to QV issues and had improved significantly. (COA 4.B.6.c)

- A number of station departments have requested QV to perform focused reviews or evaluation of suspected areas of concern as an independent quality assessment to the line departments. Additionally, QV has initiated quality consultant activities with station departments in an effort to analyze key issues in search of their root cause and ultimate resolution. Examples include a quality partner (QV person) working in RP, a review of station efforts to reschedule L1R07, and an independent overview of Operations activities. Clearly, the station has determined that QV does add value to station activities and the station is utilizing QV in a positive endeavor as an independent quality authority.

2.4 MANAGEMENT AND LEADERSHIP (COA 1)

- The System Readiness Review Board Program, which was initiated in August, 1994, allows system engineers to make formal presentations to Senior Management on the status of their assigned systems. The system engineers discuss at these meetings various system performance issues such as repetitive equipment failures, maintenance costs, and various work request information. Also discussed are the root causes of equipment failures and the corrective actions taken or needed to prevent recurrence. This forum is a good two-way communication mechanism between senior management and the system engineers. During the meeting, the senior managers obtain information on major plant components and the status of plant major systems; the system engineers benefit by gaining the insight of senior managers and their assistance in removing obstacles preventing progress on specific items. The System Readiness Review Board Program will continue to play a major role in developing system priorities and long-term corrective actions to enhance system performance.

2.4.1 Strengthen the Leadership Team Structure (COA 1.B.1)

- LaSalle management has reinforced the leadership team's key positions with personnel who have successfully demonstrated their technical and leadership abilities elsewhere in the industry or within Commonwealth Edison. The personnel selected to fill the following positions have been judged by the Site Vice President and Chief Nuclear Officer to be people who have the skills and experience to successfully implement and achieve performance improvements at the Station.

- New Management and Supervisory personnel, many who bring experience from outside of the Station, have been assigned to the following positions:

  - Site Vice President
  - Station Manager
  - Site Engineering and Construction Manager
  - Operations Manager
  - Services Director
  - Maintenance Superintendent
  - Executive Assistant to the Site Vice President
  - Corrective Action and Improvement Director
  - Chemistry Supervisor
  - System Engineering Manager
  - Radiation Protection Manager

- In addition to the leadership team changes described above the Site Vice President created a dedicated Business Unit Plan (BUP) group. It was staffed with seasoned managers and experienced technical experts. The group served as a resource to assist line management implement BUP objectives and has subsequently been absorbed into the organizational working groups. (COA 1.B.1.b)

- A temporary Radiation Protection advisor was utilized from INPO to assist in the improvement in RP. The Technical Services Superintendent position was eliminated and temporarily reassigned as the Radiation Protection Manager. This was followed up by the acquisition of an individual from outside the ComEd system to fill the Radiation Protection Manager position permanently.

2.4.2 Improve Leadership Behaviors (COA 1.B.2)

- LaSalle Station has created coaching opportunities to reinforce strong leadership behaviors by:

  - Key Senior Station Managers are meeting at least three times weekly to focus on important station issues.

  - The Site Vice President and the Station Manager met with the First Line Supervisors in 1994 and will continue this practice in 1995.

  - The Site Vice President is holding meetings with various management staff personnel on a monthly basis. (COA 1.B.2.a)

2.4.3 Establish Standards and Expectations (COA 1.B.3)

- LaSalle Station published its 1994 Major Station Goals. These goals set targets for unit and safety system performance, as well as personnel safety and radiation exposure. The 1995 goals have been blended into the 1995 Annual Plan which lists the activities the Station is to complete during 1995. (COA 1.B.3.a)

- Critical independent assessments have been performed in various areas of the organization.

  - EPRI assessment of Radwaste.
  - ANI assessment of RP
  - FINETECH assessment of Chemistry.

- Roles and responsibilities were developed and communicated. This will be an ongoing process. (COA 1.B.3.c)

2.4.4 Communicate Expectations (COA 1.B.4)

- Expectation seminars for station personnel were conducted. In these seminars, management expectations regarding radiation worker performance and procedure adherence were emphasized. (COA 1.B.4.a)

- A station-wide communication plan was drafted in the form of a policy guideline. A station communication coordinator was also established. (COA 1.B.4.b)

- Senior Managers are attending weekly departmental communication meetings on a weekly basis. (COA 1.B.4.c)

- The Event Screening Meeting was established. Initially this meeting was conducted by the Station Manager on a daily basis. This has been delegated to the Department Head level. (COA 1.B.4.d)

2.4.5 Enforce Accountability (COA 1.B.5)

- The Performance Planning and Review Process (PPR) for 1994 initially linked fifty percent of each individual's performance rating to achievement and implementation of the 1994 major station goals. Further evaluation of this plan resulted in placing one hundred percent of the rating on individual's performance since the teamwork and accountability elements were already part of the PPR evaluation. The 1995 PPR process will continue to place emphasis on teamwork and accountability.

2.4.9 Reduce Human Errors (COA 5.B.3)

- The first line supervisors play an important role in reducing personnel errors. Management has communicated their expectations for first line supervisor's responsibilities for assuring improved human performance.

- A root cause analysis investigation concerning radiation worker radiation protection work practices has been completed. Corrective actions have been developed and are being implemented.

- A multi-departmental, corporate supported team has been created to investigate all significant human error events over the past six months to identify any common causes. When the investigation is completed, corrective actions will be developed and implemented.

2.6 TRAINING IMPROVEMENT

- Training program issues have been communicated at the senior manager/department head accountability meetings. The communication focused line management actions on key training program issues. (Objective A)

- Program accreditation probation status and planned corrective actions have been communicated to the LaSalle workforce by instructors visiting each department's communication meetings discussing a special Training Bulletin with the station population.

- On the Job Training/Training Performance Evaluation (OJT/TPE) observation training was developed for line personnel responsible for monitoring on-the-job training and evaluation. (Objective A)

- Training Performance indicators were revised/created to reflect relevant information on training program status. (Objective B)

- The Senior Training Council has been established and a charter developed. The first meeting was held on April 5, 1995. Meetings will be held monthly for the immediate future. (Objective B)

- Instructors and materials from other stations and Production Training Center (PTC) have been acquired to work with the LaSalle instructors to revise current drawings/transparencies and create new training materials using a standard software program. (Objective D)

- Discussions are underway in several departments regarding personnel transfers into Training. Twelve Training Department people have been identified for developmental moves into line and corporate positions. (Objective H)

- INPO was contacted for scheduling personnel to perform peer evaluations on INPO Accreditation Teams. Two are currently scheduled. (Objective I)

- A benchmarking visit has been completed at Duane Arnold Nuclear Station to observe their training programs. Information exchanges are occurring with Hatch, Surry, Limerick, SONGS,Maine Yankee, and the other ComEd stations. (Objective I)

- A matrix was written organizing the corrective actions according to INPO identified and bold-faced self-identified problems, as well as the probationary issues. (Objective J)

- Communication sessions were conducted with Senior Managers and Departments to deliver the initial message on the INPO Accreditation renewal. Training Supervision, other Station staff, and NOD representatives have been given a similar message. (Objective J)

- Seminars for line management involvement with training were completed for all First Line Supervisors and above. (Objective A)

- An INPO Senior Manager Training System Development training seminar and group interviews were completed. (Objective A)

- Conservative Decision Making seminars for all licensed individuals were conducted. (Objective A)

- The Training Identification Form process has been initiated to provide a means of identifying and recommending training needs by line departments.(Objective A)

2.6 OUTAGE PERFORMANCE

2.6.1 Improve Outage Processes

- The Work Control Center (WCC) has been implemented to supports outage implementation. The first step in implementing the Work Control Center (WCC) concept occurred during the L1R06 refuel outage. The Work Control Center initially occupied an area on the 3rd floor of the new service building. In addition to functioning as a command center for outage staff, the Work Control Center was the location of the out-of-service writers, the work request test files, and the Work Control clerical staff.

  After the L1R06 refuel outage, the capabilities of the Work Control Center were expanded to include all support functions needed to investigate, administer, plan, schedule, and execute work. In order to provide a single central location to support the worker's needs, more space was needed than the current space could accommodate. A more convenient location near the plant access point was necessary.

  To satisfy both the space and convenience requirements, the Work Control Center was located to the first floor in the new service building. The Work Control Center occupies an area adjacent to the Radiation Protection (RP) counter. The RP counter is the full service WCC counter, including the current radiation protection service functions. The Work Control Center was fully functioning, on schedule, in September 1994. Improvements in work completion rates have been observed as a result of this and other related work control initiatives. L2R06 work activities necessary to load fuel were completed 16 days earlier than the previous two refueling outages.

- A Benchmarking trip was taken to Limerick Station to gain insights into good outage management practices. A tracking system to incorporate Limerick Lessons Learned was established.

- An INPO evaluation was performed to identify needed improvements in outage management methods.

- The Integrated Leak Rate Test (ILRT) frequency was revised to reduce a regulatory burden from the outage schedule in order to free up resources for other support activities and to shorten the critical path sequence.

- The efficiency of the Out-of-Service (OOS) process has been improved by establishing a program that allows the Control Room operators to write OOS documentation.

- A Scope Control Process was implemented which established a multi-discipline review of all significant changes to Outage Work Scope.

- Improved pre-outage planning milestones have been established to enhance successful outage execution.

2.6.2 Improve Outage Management Methods to Enhance Outage Performance Success Factors.

- The Outage Scope Control Process has been established, publicized, and implemented in order to insure that the resources available for the outages are used efficiently both for the planning and execution of the outage. The process is being used for the current L2R06 refuel outage.

- An outage incentive plan was established in order to get the station populace more focused on the outage goals. A system to routinely inform station personnel of progress on incentive programs was established to maintain the interest in the outage goals. The incentive includes money payout to each station employee based on the station's performance in 6 categories: Personnel Safety, Human Performance, Schedule Variance, ALARA Variance, Budget Variance and Cycle Unit Performance. This program was implemented for Refuel Outage L2R06.

- Clear, descriptive, easily understandable, and meaningful outage performance indicators were established for measuring outage performance,

2.6.3 Improved Outage Work Execution to Enhance Success Factors.

- A listing of station projects that require specific managers was published and names were assigned responsibilities as the first step for implementing a Project Management Philosophy at the station.

- A Shift Engineer was located within the Work Control Center for the purposes of pre-authorization of work requests in order to improve outage Control Room performance by reducing Control Room Supervisor administrative burden.

- Safety meetings were conducted with all contractor craft workers on a daily basis to improve contractor control.

- An agreement has been reached between ComEd and Local Union 15 concerning the establishment of integrated maintenance teams at the station which will improve wrench time.

2.7 TECHNICAL SUPPORT PERFORMANCE (COA 7 - ENGINEERING)

2.7.1 LaSalle Station Engineering Groups Will Perform Mainly Engineering/Technical Support Functions (COA 7.B.1)

- A draft document defining the roles, responsibilities and the interfaces for Engineering has been developed to ensure Operations and Maintenance activities are consistent with the design/licensing basis. (COA 7.B.1.a)

- Engineering has updated Corporate and LaSalle specific Engineering, Administrative, and Construction procedures to be in line with the 1993 Engineering reorganization. A complete rewrite of the Engineering Design procedures is presently in progress to address modifications to the ComEd Quality Assurance program. (COA 7.B.1.b)

2.7.2 LaSalle Station Maintains a Technically Competent, Highly Motivated and Experienced Engineering Staff (COA 7.B.2)

- The Senior Engineer Operations Certification (SEOC) is a six week training course which combines detailed system description study with simulator training. This course was especially designed for System Engineering by the LaSalle and Production Training Center, using input from the System Engineering Managers. Candidates for the class require approximately 5 years technical experience before participating. Trainees experience an accelerated systems description study, simulator training on unit startups/shutdowns, and Emergency Operating Procedure drills. Upon satisfactory completion of the course, the trainee has a much broader perspective of power plant operations and how their assigned systems interact with other plant systems. Currently, 15 engineers have been sent through the program with another 10 scheduled for June 1995. (COA 7.B.2)

- Engineering has performed professional/technical development activities to attain skills that will lead to qualifications for higher level positions within the Engineering Department and greater experience levels overall. System Engineering has enhanced engineer training by providing a six week Simulator Certification Course and Management Development training for System Engineering Group Leaders. (COA 7.B.2.a)

- Engineering has initiated improvements in the current training program for engineers. Initial, as well as ongoing training, is considered part of an Engineer's core work and high priority has been placed on ensuring training needs are fulfilled. (COA 7.B.2.b)

2.7.3 Implement an Effective Root Cause and Corrective Action Program (COA 7.B.3)

- The Integrated Reporting program (IRP) has been in place for the past two years. Currently, about 2800 Problem Identification Forms per year are being submitted by workers for classification, root cause analysis for significant issues, and necessary corrective actions.

- Root Cause Analysis (RCA) engineers in the System Engineering Department specialize in performing root cause analysis on materiel condition problems.

- Recently, a new department, Corrective Actions and Improvements (CA & I) was created. CA & I has responsibility for performance monitoring, problem identification and classification, root cause analysis, and corrective action tracking processes. Currently, the CA & I root cause group is undergoing initial staffing. The RCA group will be root cause analysis process experts who assist, support and monitor line departments conducting root cause analysis.

2.7.4 Integrate Work Management System for Engineering (COA 7.B.4)

- The Work Assignment Tracking System (WATS), implemented for Engineering in early 1994, has been upgraded to provide a direct link to the Station work planning system and includes standard fragnets for generic and/or recurring activities to provide baselining and feedback for manpower projections for each activity step. (COA 7.B.4.a and b)

- The station's prioritization process was revised to provide a systematic structure including integrated prioritization, long range planning, resource requirements, and scheduling information. The process requires that emerging technical issues and industry/regulatory issues be addressed by the Technical and Business Review Committees for concurrence, prioritization, resource requirements, and the implementation schedule. (COA 7.B.4.c)

2.7.5 Engineering Self-Assessment Practices (COA 7.B.5)

- The Integrated Quality Effort (IQE) program has been placed into effect at LaSalle. This is a performance indicator program which currently includes 24 direct measurements for the Engineering function and numerous other measurements of plant functions that Engineering impacts. Trending of the indicators provides self-assessing capabilities for Engineering processes and practices. (COA 7.B.5.a)

- A Dedicated Architect Engineer (DAE) performance indicator program has been developed to provide measurable and subjective input on the DAE's performance in order to identify areas of superior performance. (COA 7.B.5.b)

- The System Readiness Review Board Program, which was initiated in August, 1994 allows system engineers to make formal presentations to senior management on the status of their assigned systems. The system engineers discuss at these meetings various system performance issues such as repetitive equipment failures, maintenance costs, and various work request information. Also discussed are the root causes of equipment failures and the corrective actions taken or needed to prevent recurrence. This forum is a good two-way communication mechanism between senior management and the system engineers. During the meeting, the senior managers obtain information on major plant components and the status of plant major systems; the system engineers benefit by gaining the insight of senior managers and possibly their assistance in removing obstacles preventing progress on specific items. The System Readiness Review Board Program will continue to play a major role in developing system priorities and long-term corrective actions to enhance system performance. (COA 7.B.5.c)

- LaSalle Engineering has developed a self-assessment process with an established reporting format, frequency, and distribution of results. (COA 7.B.5.d)

2.7.6 Information Management Enhancements (COA 7.B.6)

- An Engineering Design Change Module (EDCM), a component of the Electronic Work Control System, is in use to provide an integrated mechanism to manage Engineering design changes to the physical plant and associated design documentation. (COA 7.B.6.a)

- The Vendor Equipment Technical Information Program (VETIP), which is the program for the review, update and control of all vendor manuals and documentation, was transferred from Maintenance Department ownership to System Engineering ownership to enhance program management utilizing System Engineering personnel. (COA 7.B.6.B)

2.7.7 System Engineering is the Technical Manager of Plant Systems (COA 7.B.7)

- The Vulnerability Assessment Team was utilized to identify Safety System Vulnerabilities. 18 Vulnerabilities and 97 Observations were identified, none of which were significant. (COA 7.B.7.d and 3.B.1.a)

- A Senior System Engineer is an engineer with advanced training and experience with plant systems/components who, in addition to performing System Engineering responsibilities, acts as a mentor and facilitator to other System Engineers for their development and growth within the department. At LaSalle, these engineers have had a positive impact on their assigned systems and on the overall performance of the department. This is due to the technical talent they bring to the department and the positive influence they have on the younger system engineers. LaSalle currently has five Senior System Engineers with additional ones planned for the future. (COA 7.B.7.a)

- Reliability Centered Maintenance (RCM) is being used on selected systems and/or components to determine the basis for preventative maintenance, allow continuous improvement, increase cost effectiveness, and minimize maintenance-preventable failures. (COA 7.B.7.b)

- The Maintenance Strategy, a process to improve equipment performance and reliability through the combined efforts of System Engineering and Maintenance, is being initiated and is designed to incorporate various initiatives to control the work process. These initiatives include an analysis of Maintenance activities prior to and subsequent to field work to ensure root causes of problems are understood and remedied, development of statistical approaches to analyzing failures that lead to properly designed preventative maintenance programs (RCM), and incorporation of performance measurement goals and standards to monitor and maintain equipment at its highest reliability at all times. (COA 7.B.7.c)

- The Materiel Condition Group of System Engineering is reviewing PM programs on major system components with the System Engineers. The Materiel Condition Group has formed a partnership with the Maintenance Staff equipment specialists to facilitate these reviews. Currently, large pumps are being reviewed. The information obtained during these reviews will be used to adjust existing PM programs to ensure the proper PMs are being performed. Targeted components later in 1995 include 480V circuit breakers, fans, relief valves, and heat exchangers. It is anticipated that this effort will result in a substantial cost savings to the company by both optimizing maintenance activities and minimizing equipment failures. (COA 7.B.7.c)

2.7.8 Effective and Efficient Engineering Processes and Practices (COA 7.B.8)

- An Engineering Design Change Module (EDCM) has been incorporated into the Electronic Work Control System (EWCS) to provide an integrated mechanism to manage Engineering design changes to the physical plant and associated design documentation. EDCM benefits include a streamlined work-flow process, enhanced control of the design process, increased data entry consistency, consolidation of multiple databases, and integration with other EWCS Modules for better communication with other departments.

- Open work requests are being prioritized by System Engineering in cooperation with Maintenance and Operating. This effort includes consideration of importance to the safety and reliability of the units, the age of the work requests, and confirmation that the proposed work item is still valid. 2000 open work requests, which is 90 percent of the total open work requests, have been prioritized enabling better scheduling of work while the unit is on-line.

- System Engineering is conducting more thorough walkdowns of plant systems and has lowered the threshold of deficiency identification. The current focus is on important safety and reliability systems (approximately 40) on Unit 2 and will be followed by Unit 1 systems.

2.8 OPERATING PERFORMANCE (COA 8 - OPERATIONS)

2.8.1 Establish Higher Standards (COA 8.B.1)

- Additional operator involvement in the identification of workarounds through the problem identification process has been achieved. A workaround bulletin board in the operator ready room lists the definition and status of workarounds increasing awareness and sensitivity to workaround issues. Potential workarounds identified on PIFs have been reviewed and valid workarounds added to the list. The Radwaste Materiel Condition Committee is prioritizing and resolving long-standing materiel condition problems with radwaste systems demonstrating to operators that workarounds are unacceptable. (8.B.1.a)

- The "A" Rod Worth Minimizer Computer on each unit has been modified to prevent loss of rod position indication. The Unit 2 "B" computer is being modified in the current refueling outage and the Unit 1 "B" computer change is complete but remains to be tested. (8.B.1.b)

- A Materiel Condition Focus Group was established in January 1995 to focus on identifying and resolving long-standing equipment problems including operator workarounds. A "Plant Operating Top 5 List" is now issued regularly to indicate progress in resolving workarounds. (8.B.1.d)

- A list of workarounds is being maintained. Problems or issues have been defined by the owners and action plans are being developed to achieve resolution. Items that did not meet the definition of a workaround have been eliminated from the list. Currently there are 68 open workarounds. (8.B.1.e)

- The Operations Manager reviews equipment deficiencies, work-arounds, and other temporary changes in the aggregate quarterly with the Management Review Board. This provides a technical and nuclear safety review to ensure that the cumulative effect on unit operation is understood and margins of safety is maintained.

- The program for controlling temporary alterations has been revised to improve the recording and review of these changes so the operators can quickly determine status. The threshold number for temporary alterations has been set at 20. The number normally increases significantly during refueling outages, but the overall trend is being reduced towards the goal.

- Operator rounds for the Unit 1 reactor, turbine and auxiliary buildings have been reviewed and converted to an electronic format. The new rounds program is undergoing test validation and data cleanup. (8.B.1.i)

- The Operations Manager is performing weekly tours of the plant with Shift Engineers and the Shift Operations Supervisor to identify activities and conditions where standards or expectations are being met or need further improvement.

- Mechanical equipment checklists have been reviewed and converted into electronic format. This is a necessary and preliminary step to clean up nomenclature prior to relabeling or tagging valves. Electrical equipment checklists will also be converted. Electronic checklists improve the operator's ability to quickly locate valves in the field, enable verification of valve positions by area saving time and multiple entries into these areas, and easily update position information on the system valve list after clearing out of services.

- A pilot version of an electronic log has been developed for the NSO and Center Desk and is in trial use. This effort will improve logkeeping and turnover activities.

- Operators are now performing local leak rate testing on valves during outages. Operators retain control of valve position and system status and obtain a first hand awareness of any deficiencies in valve operation.

- An additional supervisor has been added to the Main Control Room. This arrangement now provides a Unit Supervisor for each unit to direct control room activities and a Field Supervisor for activities outside the control room. As a result, the administrative workload for these supervisors has been reduced enabling them to increase their focus on coaching and mentoring operators.

- The responsibilities and duties of the Operating Work Analyst were defined so that the analyst provides help to the shift in planning and staging operating activities and to support maintenance work.

2.8.2 Reinforce Management's Position on Adherence to Rules and Procedures (COA 8.B.2)

- An additional supervisor has been assigned to the Main Control Room, now providing one supervisor to control activities for each unit. These Unit Supervisors focus on coaching operators in support of high standards and safe operations. (8.B.2.a)

- An Operating Department Memorandum on Expectations for Radiation Work Practices has been issued and reviewed with Operations personnel to reinforce performance expectations on understanding and complying with radiation standards. (8.B.2.d)

2.8.3 Improve Human Performance (COA 8.B.3)

- A Field Supervisor position was created on each shift to increase supervisory involvement in the plant with operators. This supervisor's prime focus is to coach and mentor workers on proper practices that support high standards for performance. (8.B.3.a)

- Out of services are now prepared by the Nuclear Station Operator, thereby removing this administrative duty from the supervisors.

- A dedicated lubrication coordinator has taken over the lubrication program eliminating this administrative duty from the shift supervisors and improving the quality of this program.

- The procedure review process has been simplified to facilitate minor changes to operating procedures which do not change intent. This has improved the ability of the shift operators to initiate procedure changes. In addition, two operators have been assigned to the Procedures Group to help reduce procedure revision backlog.(8.B.3.b)

2.8.4 Improve Training Performance (COA 8.B.4)

- A communication video and guide has been developed by the Training Department for use in the next module for training operators about proper communication techniques.

- Shift Engineers have received special assessor training to provide them with the skills required to perform critical assessments of crew performance in communication techniques and correct substandard communication practices. Senior Operating Department management is also receiving this training. (6.B.4.b)

- Operators and training instructors are being put into rotational assignments to identify training opportunities and add operating experience to the training area. A licensed operator and a shift supervisor have taken training assignments and one trainer has been given an operating assignment.