

March 20, 2006

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-III-06-005B

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region III staff on this date.

Facility

LaSalle Unit 1  
Exelon Generation Co.  
Marseilles, IL  
Docket: 50-373  
License: NPF-11

Licensee Emergency Classification

☐ Notification of Unusual Event  
☐ Alert  
☒ Site Area Emergency  
☐ General Emergency  
☐ Not Applicable

SUBJECT: UNIT 1 RESTARTS FROM REACTOR TRIP (UPDATE)

DESCRIPTION:

LaSalle Unit 1 restarted March 17, 2006, after an automatic shut down which occurred February 20, 2006.

At 12:23 a.m. CST on February 20, the Unit 1 reactor shut down automatically from 6 percent power, and reactor instrumentation showed that three control rods failed to insert fully into the reactor core. There are 185 control rods which control reactor power level and which are fully inserted to shut down the reactor. The Unit 1 trip was due to a turbine intercept fast closure alarm caused by an electro-hydraulic control system problem.

Because of the uncertainty of the position of the three control rods, the licensee declared a Site Area Emergency under its emergency plan at 12:28 a.m. After determining that the reactor was shut down (i.e., subcritical), the licensee terminated the emergency classification.

Region III (Chicago) initiated a special inspection to review the circumstances surrounding the control rod indicator problem and the licensee's investigation and corrective actions. After the special inspection was concluded on February 27, the resident inspectors continued to follow the licensee's ongoing root cause evaluation of the failure of the electro-hydraulic control system which led to the reactor shutdown. They also conducted inspections on the rod worth minimizer to determine if the equipment provided control room operators with appropriate information regarding control rod position during the shutdown.

The inspectors concluded that the reactor operators' response and emergency notification classification to the event were appropriate. The licensee's investigation determined that two of the three control rods were fully inserted, but that the rod worth minimizer did not record the position of the rods. The third rod did not insert fully during the initial trip signal, but did fully insert after the operators reset the initial trip signal and manually initiated a second trip signal. The licensee's post event analysis determined that the reactor would have been safely shut down in the unlikely situation where all three control rods remained fully withdrawn.

The uncertain control rod indication was due to friction between the control rods and the fuel channels due to channel bowing or deformation. When inserted, the control rods were held in a position slightly beyond the point where instrumentation would show a fully inserted indication.

Fuel channel deformation is a known industry issue and the licensee had been following the vendor's recommendations addressing this phenomenon. As previously reported, the licensee plans to inspect specific fuel bundles discharged to the spent fuel pool to further evaluate the cause of the channel deformation/bowing.

The licensee is also pursuing changes to the industry guidance on fuel channel deformation.

The licensee's root cause analysis indicated that the electro-hydraulic control system problem occurred due to faulty components. These components have been replaced and the system has been satisfactorily retested. The licensee plans to replace the existing electro-hydraulic control systems on both units with more advanced digital control systems during the next refueling outage on each unit.

The licensee's root cause evaluation for the rod position indication problem determined that there was a design deficiency with the rod worth minimizer, which monitors and indicates the position of control rods during startup and shutdown. The design problem, in conjunction with a 1995 modification to this system, in this case, led to a faulty indication of the control rod positions. The licensee made a modification to the Unit 1 plant process computer to address this problem. This modification was already available on Unit 2, and previously scheduled for installation on Unit 1 during the outage before the event occurred. The licensee will be replacing both unit's manual rod control systems and rod position indication systems with newer digital systems during the next refuel outage on each unit.

The State of Illinois has been notified of this updated information.

The licensee and the NRC issued a news release on this event. The information in this preliminary notification has been reviewed with licensee management.

#### CONTACTS:

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