



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

June 9, 1993

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Subject: LaSalle County Station Response to NRC Bulletin 93-02, "Debris
Plugging of Emergency Core Cooling Suction Strainers"

LaSalle County Station Units 1 and 2,
(NRC Dockets 50-373 and 50-374)

The purpose of this letter is to provide the LaSalle County Station response to the subject Bulletin. The details of the LaSalle response are provided in the attachment. In summary, LaSalle has performed the requested actions of the Bulletin and has performed an administrative review of the use of fibrous materials in the Unit 1 and Unit 2 containments. In addition, a physical walkdown of Unit 2 drywell was performed during the June 1993 maintenance outage.

The results of these activities verified that the inventory of temporary fibrous materials is limited to approximately 16 square inches on Unit 1 and 12 square inches on Unit 2. An engineering evaluation has determined this amount to be acceptable.

The verification activities completed for Unit 1 will be supplemented with a drywell visual inspection during the next outage of sufficient duration. Commonwealth Edison will notify the NRC of the results of this inspection.

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To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other CECO employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

If there are any questions or comments, please contact me at (708) 663-7292

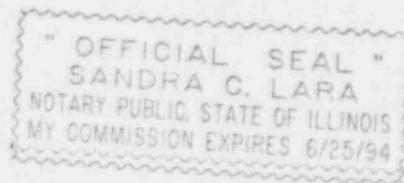
Sincerely,

D. J. Chrzanowski
David J. Chrzanowski
Nuclear Regulatory Services

Attachments: LaSalle County Station Response to Bulletin 93-02

- cc: Regional Administrator-RIII
- J. Hickman, Project Manager-NRR/PDI-2
- R. Stransky, LaSalle Project Manager-NRR/PDI-2
- D. Hills, Senior Resident Inspector (LaSalle)

State of Ill County of DeWitt
 Signed before me on this 9th day
 of June, 1993 by [Signature]
 Notary Public [Signature]



ATTACHMENT

LASALLE STATION RESPONSE TO NRC BULLETIN NO. 93-02

LaSalle Station has reviewed NRC Bulletin No. 93-02, Debris Plugging of Emergency Core Cooling Suction Strainers, for applicability to the station. Based on this review, LaSalle Station has performed an evaluation to determine what actions are required to fully comply with the NRC Requested Actions per Bulletin No. 93-02.

Per NRC Bulletin 93-02, the NRC is requesting that all holders of operating licenses for nuclear power reactors identify fibrous air filters or other temporary sources of fibrous material, not designed to withstand a LOCA, which are installed or stored in the primary containment. The NRC also requests that the station take prompt action to remove any such material from the primary containment to assure the functional capability of the ECCS. The NRC also states that because of the low probability of a LOCA event, the staff considers removal of this material at the next shutdown, or within 120 days, whichever comes first, to be sufficiently prompt.

LaSalle Station has previously responded to NRC Generic Letter 85-22 and NRC Information Notice 88-28, Potential for Loss of Post-LoCa Recirculation Capability Due to Insulation Debris Blocking. LaSalle Stations' response to these NRC documents included an evaluation of all insulating material inside the drywell. A walkdown was performed on all insulated piping within the Drywell of both units to verify the type, condition, and extent of insulating material used. Engineering personnel had evaluated the use of the insulation types during that time and determined that if a LOCA occurred, there would be insufficient transport of insulation into the wetwell to cause the ECCS or RHR suction strainers to become blocked. Engineering personnel also evaluated the use of Microtherm insulation for application to the RVLIS and Main Steam High-Flow Instrument piping and also found it to be acceptable.

NRC Information Notice 92-71, Partial Plugging of Suppression Pool Strainers at a Foreign BWR, addressed an event where a reactor vessel safety valve was opened to the drywell causing the dislodging of mineral wool type insulating material. This wool material was eventually washed into the suppression pool causing suction strainer partial blockage. AIR 373-103-92-07101 was issued to address and evaluate the potential for that type of event at LaSalle Station. Our evaluation concluded that mineral wool insulation is not utilized in the LaSalle Station drywells. Additionally, it was concluded that because the SRVs do not discharge directly into the drywell, an inadvertent SRV opening could not cause a similar problem.

The primary focus of NRC Bulletin 93-02 is an incident which occurred at a United States BWR Power Plant involving clogging of ECCS pump suction strainers due to deposition of filter fibers on Residual Heat Removal Strainers. It was determined that the debris consisted of glass fibers from temporary drywell cooling filters that had been inadvertently dropped into the suppression pool. The plant used the fibrous material as a filter in three cooling air return ducts located in the drywell. In addition, there were six similar air filters in the containment. It had been common practice at the plant to replace the filter material at the end of each outage and to leave the material stored in the drywell and containment during operation of the plant at power.

The subject reactor containment is a Mark III design where the reactor is located in the drywell structure and a free standing steel primary containment is constructed around the drywell. The suppression pool is located in the containment extending into the drywell weir area through horizontal vents/openings in the drywell wall. The suppression pool is open to the containment and drywell weir area. Only grating partially covers the suppression pool open area. In the event that any material located directly over the suppression pool was dislodged, loosened, or dropped, the material would fall directly into the suppression pool without any restriction during any plant condition. The ECCS suction lines/strainers are all located on the primary containment side of the suppression pool. It is very evident that the affected ECCS suction strainers are very susceptible to blockage from foreign material intrusion into the suppression pool, even under normal circumstances, due to the primary containment design in general.

The LaSalle reactor containment is a Mark II design where the reactor is located in the drywell which also acts as the primary containment. The suppression pool is located directly under the drywell in an enclosed chamber. The ECCS suction lines/strainers are all located in the enclosed suppression pool chamber. A concrete floor separates the suppression chamber from the drywell. The only openings to the suppression pool consist of two personnel access hatches located on the suppression chamber side of the primary containment which are normally maintained closed/sealed, drywell floor to suppression pool instrumentation penetrations which are blind flanged, and ninety eight drywell to suppression pool downcomers for LOCA pressure suppression.

The drywell to suppression pool downcomers are constructed of 23.5" inner diameter stainless steel piping extending approximately six inches above the drywell floor and penetrating into the suppression pool approximately 12' below the normal suppression pool water level (elevation 699'). The downcomer openings on the drywell floor are covered by steel plates mounted approximately 4" above the downcomer opening and extending approximately 4" beyond the downcomer opening. In the event that any foreign material was dislodged, loosened, or dropped in the containment, it would fall

to the drywell floor or on top of the downcomer covering plate. In most cases, it is very difficult for any suppression pool foreign material intrusion to occur at LaSalle Station under normal circumstances due to the primary containment design in general.

The Suppression pool water volume is used during Refuel outages to supply Reactor grade water for flood up and refueling activities, in addition to being the source of water for ECCS pumps during other operating modes. In order to obtain this quality of water, the Suppression Pool Cleanup system is operated during the refuel outage to clean up and maintain the water quality.

The Suppression Pool is visually inspected by the Technical Staff during the Integrated Leak Rate Test (ILRT) per LTS 600-3 Primary Containment Inspection. The inspection is to look for signs of damage and foreign materials in the Suppression Pool. This was performed on Unit 1 and Unit 2 prior to their restarts from the Refuel outages. The results were satisfactory for both units.

The suction strainers at the subject Nuclear Power Plant were conical shaped devices made of 18 gauge stainless steel perforated plate with 0.18 cm (0.07 inch) diameter holes at 0.287 cm (0.113 inch) centers with internal cruciform shaped stiffener plates for support. The suction strainers at LaSalle area of a different design that is less susceptible to plugging. The design of the LaSalle suction strainers is a 24-15/16 inch diameter by 36 inch long screen cylinder with intake slots .05 inch wide by 24 inch long with angled support pipes.

LaSalle Station has monitored the suction pressure and suction dp for the Unit 1 and Unit 2 ECCS pumps since initial startup. The pumps and pressures are surveilled on a quarterly basis and the trends obtained indicate that there is no plugging or obstruction of the suction strainers and no negative affect on the pump performance.

In addition to the primary containment design differences, LaSalle Station takes stringent measures in preventing the accumulation of any foreign material in the primary containment and/or intrusion of foreign material into the suppression pool. These measures are as follows:

1. Storage of any type of foreign materials in the drywell is not a common practice at LaSalle Station. Prior to unit startup after an outage, LaSalle Station is required to perform Operating Surveillance LOP-DW-01, Drywell closeout (After Outage). This surveillance requires that the drywell be inspected for foreign materials and/or debris as well as proper installation of insulation. All discrepancies must be resolved prior to surveillance signoff/closeout. In the past, the resident NRC inspector has participated in these inspections. In addition, the Station is also required to perform LOP-DW-02, Drywell Entry and Inspection (Shutdown, Startup, and Operation) which also requires inspections for accumulated debris when LOP-DW-01 is not required.

2. Whenever any work is being performed near open suppression chamber penetrations, LaSalle Station provides and describes the precautions that must be observed per the requirements set forth in LaSalle Administrative Procedure LAP-100-38, Work Near Open Suppression Chamber Penetrations. This administrative control specifically addresses the potential for ECCS suction strainer blockage due to foreign material intrusion into the suppression chamber.
3. Temporary use of materials is controlled by LAP 240-6 Temporary System Change (TSC). This procedure requires that the installation of items on a temporary basis be reviewed by Onsite Review and evaluated using 10 CFR 50.59 Safety Evaluation process. This ensures that an adequate review of the changes is conducted in order to comply with Technical Specifications and the Updated Final Safety Analysis Report.

Prior to a Reactor Startup following an outage, LaSalle General Procedure LGP 1-1 Normal Unit Startup requires a thorough review of the Temporary System Change log to determine if the active TSC's are required to be cleared prior to startup. Any TSC's that are to remain installed are reviewed for Environmental Qualification, Seismic, and Safety. These of a TSC on a safety related component is reviewed carefully to ensure all aspects of equipment operability are addressed.

4. LaSalle Administrative Procedure LAP 300-16. Cleanliness Control covers activities in the plant with regards to Foreign Material Exclusion. This program provides control of materials that have the potential to enter opened systems such as the Suppression Pool.

A review of the station Total Job Management (TJM) system was conducted for all work done in the Unit 1 and Unit 2 containments during the last year. This was performed to determine if any temporary fibrous materials may have been used in the containment and, if so, was it analyzed for LOCA conditions. The results of this review were satisfactory with nothing abnormal identified. This agrees with the results of the drywell walkdowns conducted on Unit 2 during the June 1993 maintenance outage.

LaSalle Station Primary Containment Ventilation system has permanently installed polyester filters on the Main Ventilation unit and the 6 area coolers installed in the Drywell. The ventilation system is a permanent system.

LaSalle Station unit 2 performed a maintenance outage that commenced June 1, 1993. During this outage, the unit was taken to cold shutdown, the containment de-inerted, and work performed inside the Drywell. LaSalle Station conducted a Drywell walkdown to inspect for any temporary fibrous material and did not find any temporary materials stored or used in the containment.

A thorough review of the Administrative controls in place revealed on Temporary System Change that has been installed using fiberglass insulation. Temporary thermocouples were previously installed on Unit 1 to monitor Reactor level condensing pot temperatures and on Unit 2 to monitor Reactor level condensing pots and the associated reference legs. The purpose of this project was to gather data to allow better calibration on the Reactor Water Level Narrow Range indications and also provide data in regards to Information Notice 93-27 "Level Instrumentation Inaccuracies Observed during Normal Plant Depressurization".

The installed insulation on Unit 2 consisted of 25 small pads (largest -6"x6") of fiberglass enclosed in a tight meshed stainless web. Each pad was secured over the top of the temporary thermocouple to isolate the sensor response from the ambient air temperature condition. The pads were installed in various locations throughout the Drywell and, therefore, unlikely to all be affected by any single event.

The total inventory of insulation was evaluated to be acceptable, even in the worst case scenario of complete transfer of the insulation pads to a single ECCS suction strainer. However, most of the insulation pads were removed during the Unit 2 Maintenance outage. This was done because the data collection effort which they supported is complete. Unit 1 has 16 square inches of material and Unit 2 has 12 square inches of material on the level condensing pots located in the Drywell. An engineering evaluation has determined this amount to be acceptable. The remaining inventory on both units is minor, and is tracked by the inventory control calculation which has been in place at LaSalle since 1987.

In summary, LaSalle Station has performed an administrative review of the use of fibrous materials in the Unit 1 and Unit 2 containment. In addition, a physical walkdown of the Unit 2 Drywell was performed during the June 1993 maintenance outage. The results of these activities verified that the inventory of temporary fibrous materials is limited to approximately 16 square inches on Unit 1 and 12 square inches on Unit 2. The location of the condensing pots are:

Unit 1

Area Used	Condensing Pot	Quantity Used
1. DW 807 330 degrees	1B21-D004A	2 patches 1 sq. inch ea.
2. DW 807 200 degrees	1B21-D004B	2 patches 1 sq. inch ea.
3. DW 807 160 degrees	1B21-D004C	2 patches 1 sq. inch ea.
4. DW 807 20 degrees	1B21-D004D	2 patches 1 sq. inch ea.
5. DW 811 230 degrees	1B21-D367	2 patches 1 sq. inch ea.
6. DW 813 30 degrees	1B21-D368	2 patches 1 sq. inch ea.
7. Top of Drywell Head	1B21-D002	2 patches 1 sq. inch ea.

Unit 2

Area Used	Condensing Pot	Quantity Used
1. DW 807 330 degrees	2B21-D004A	1 patch 1 sq. inch ea.
2. DW 807 200 degrees	2B21-D004B	2 patches 1 sq. inch ea.
3. DW 807 160 degrees	2B21-D004C	1 patch 1 sq. inch ea.
4. DW 807 20 degrees	2B21-D004D	1 patch 1 sq. inch ea.
5. DW 807 150 degrees	2B21-D367	1 patch 1 sq. inch ea.
6. DW 807 30 degrees	2B21-D368	3 patches 1 sq. inch ea.

The measures taken to date have been to determine the exact quantity of fibrous material, the location, and the purpose of the installation. After a review of the intent, all but a small quantity of the temporary insulation was removed. The insulation that was left remaining in the Drywell was evaluated by Site Engineering personnel for what affect this material would have on the ECCS suction strainers if it was transported to the Suppression Pool. The evaluation found that this small quantity would not adversely affect the ECCS suction strainers. The remaining temporary insulation will be removed following the completion of data acquisition for the level notching concern. An engineering review was performed to determine if there would be any adverse affects on the ECCS suction strainers based on the fiberglass insulation installed over the temporary thermocouples. The results of this review stated that with this small amount there would be no adverse affects on the strainers.

LaSalle Station Unit 1 is currently in Operation Condition 1, Run Mode and is not scheduled to shutdown until January 1994 for a scheduled Refuel outage. LaSalle Unit 1 and Unit 2 are identical units and are controlled by the same Administrative Procedures. The control of temporary materials and foreign material exclusion is the same for both units. Thus, the administrative review that was performed for Unit 2 was also performed for Unit 1 and the results were satisfactory. The administrative controls of temporary systems changes is further assurance that no temporary storage or use of fibrous materials in the containment has occurred other than that previously identified. Prior to Unit 1 Startup in January 1993, a Drywell close out walkdown was performed and verified no temporary materials were left in the containment. The walkdown of Unit 2 during the Maintenance outage also verified that no unknown temporary materials are in the containment. During the next scheduled outage of sufficient duration, the Unit 1 drywell will be inspected to provide physical verification that there is no unknown fibrous material stored or used in the Drywell.