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September 8, 1986

Mr. James G. Keppler
Regional Administrator
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL. 60137

Subject: LaSalle County Station Units 1 and 2
NRC Docket No. 50-~~454 & 50-455~~ 50-373 + 50-374
Supplemental Response to NRC
IE Bulletin 86-02

Reference: (a) I.E. Bulletin 86-02, J.M. Taylor to all OLS and CPS, dated July 18, 1986
(b) Letter from I.M. Johnson to J.G. Keppler, dated July 25, 1986 and Attachments
(c) Letter from I.M. Johnson to J.G. Keppler, dated August 29, 1986

Dear Mr. Keppler:

In our July 25, 1986 response to IE Bulletin 86-02, it was indicated that information specific to LaSalle County Station Unit 1 would be submitted upon completion of the Unit 1 test program. That information was provided in an August 29, 1986 letter (Reference (c)).

In addition, in a conference call with the NRR staff on September 5, 1986, Commonwealth Edison was requested to update that response to summarize testing performed on the SOR series 102 and 103 differential pressure switches, describe corrective actions that will be taken prior to startup, and additional testing and augmented surveillances that will be performed during and after startup to verify proper operation of the switches and associated systems on both units 1 and 2. This revised response is provided in Attachment 1 to the letter.

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

Please address any questions that you or your staff may have concerning our supplemental response to this office.

One signed original with attachments is being sent directly to the U.S. Nuclear Regulatory Commission Control Room in Washington for reproduction and distribution as requested in the bulletin.

Respectfully,

Irene M. Johnson

I. M. Johnson
Nuclear Licensing Administrator

/klj

cc: U.S. NRC Document Control Desk
Washington, DC. 20555

Resident Inspector-LaSalle

SUBSCRIBED and SWORN to
before me this 8th day
of September, 1986

Julia I. Mayo
Notary Public

2076K

ATTACHMENT 1

REVISED LASALLE COUNTY STATION, UNITS 1 AND 2
SUPPLEMENTAL RESPONSE TO IE BULLETIN
NO. 86-02 STATIC-O-RING DIFFERENTIAL
PRESSURE SWITCHES, SEPTEMBER 1986

LASALLE COUNTY STATION, UNITS 1 AND 2
RESPONSE TO IE BULLETIN NO. 86-02
STATIC-O-RING DIFFERENTIAL PRESSURE SWITCHES

1. SOR DIFFERENTIAL PRESSURE SWITCHES INSTALLED AT LASALLE

SOR series 102 and 103 differential pressure (DP) switches are installed on both units at LaSalle. During the spring 1985 outage on Unit 2, 59 SOR DP switches were installed as part of an environmental qualification modification to replace the original switches. On Unit 1, 58 SOR DP switches were installed during the first quarter of 1985 and during the first refueling outage in the first two quarters of 1986.

These switches are used in the following applications:

No. of Switches Unit 1	Unit 2	Application
22	23	Reactor Water Level 1,2,3, and 8
8	8	ECCS Minimum Flow
16	16	Main Steam Line High Flow Isolation
8	8	RCIC/RHR High Steam Line Flow Isolation
4	4	RHR Shutdown Cooling Line High Flow Isolation

Table 1 contains a complete list of the series 102 and 103 SOR DP switches installed on both Units at LaSalle in both safety and non-safety related applications.

2. Operator Training

All licensed shift personnel have been trained on the June 1 event at LaSalle Unit 2 with regards to the SOR DP switches. This training included a discussion of where the switches are installed, their functions, and their setpoints. The "Conduct of Operations" requirement to monitor plant instrumentation and initiate manual action if a nominal Tech. Spec. setpoint is exceeded and the required automatic action does not occur was also re-emphasized.

3. Special Testing of SOR DP Switches

LaSalle has performed special testing on the Unit 1 and 2 switches to characterize the setpoint variability. These setpoint characterization tests measured the shift in setpoints due to the increase in static pressure from calibration to operation, the effects of cycling the switch during calibration, and the repeatability of the switches.

The setpoint characterization program consists of a static pressure cycling test and a 24-hour static pressure test. This testing program is described in detail in Reference 2.

On Unit 2, the static pressure cycling test was performed on all switches except for a few ECCS minimum flow switches. The performance of these switches was verified during ECCS system operation. On Unit 1, the static pressure cycling test was performed on all switches.

For Unit 2 the 24-hour static pressure test was performed on a representative sample (more than half) of switches, whereas on Unit 1 every switch (except a few ECCS minimum flow switches) was tested. Switches in every application were tested. The size of the Unit 2 sample was based on a comparison of the amount of existing margin between the desired setpoint and Tech. Spec. limit to the adjustable range of the switch. In applications where the existing margin was very small with respect to the adjustable range of the switch (reactor water level 3, reactor water level 8, and main steam line high flow switches), every switch in the Unit 2 (and Unit 1) application underwent the 24 hour static pressure test.

From the early test results on Unit 2, it was observed that the switches with the largest repeatability error also exhibited the largest static shift error. Unit 2 switches with the largest repeatability errors were then selected to be tested at static pressure over 24 hours. Therefore, the test results on this sample bounded all of the switches for that application, and performance of the 24 hour static pressure test on all Unit 2 switches was not necessary for determining new setpoints for that application. Table 2 provides the sample size tested in each switch application.

As stated above, the test program on Unit 1 was more comprehensive in that in every application except the ECCS minimum flow valves, 100% of the switches underwent both repeatability (static pressure cycling) and static offset (time-pressure "soak") testing. Five of the eight ECCS minimum flow valve switches were not tested for static offset because the switch setpoint chosen allowed much more margin than the static offset measured from the three identical switches tested required.

A series of static pressure tests conducted over various time intervals up to 72 hours demonstrated that 24 hours was sufficient to observe the full static pressure shift in the setpoint. In these series of tests, four switches were tested at static pressures longer than 24 hours, and their setpoints changed very little after 24 hours. References 2 and 3 contain this test data. This time period has also been verified by a long-term testing program at SOR on model 103AS-B212 DP switches. Their test data shows that the switch setpoints shift by 0.6 inches W.C. or less between 24 hours and 2 weeks. This data is contained in reference 4.

The setpoint variance for all SOR switches has been fully characterized prior to resuming operation. Because of this program and the augmented surveillance program described in Table 4, additional special tests are not anticipated.

4. Test Results/Failures

All of the testing has been completed on both Unit 1 and Unit 2 switches. The test results are summarized in Table 2. These test results show that some of the SOR DP switches would not have met their Tech. Spec. requirements under normal operating conditions at their existing setpoints. However, based on a GE analysis, all of the switches except for one switch on Unit 2 would have tripped within analytical limits (see Reference 2).

Per reference 1 LaSalle station has submitted a report (LER 86-011-00) in accordance with 10 CFR 50.73 which addresses the June 1, 1986, event on Unit 2. A supplemental report for Unit 2 was submitted, (Reference 2) on completion of the testing. On Unit 1, a final report was submitted as shown in Reference 6.

5. Interim Performance Monitoring Program

Since corrective actions will be taken prior to unit startup, an interim performance monitoring program was not developed. The corrective actions that will be taken are described in the next section. Note that when 100% of the dp switches on Unit 1 were tested, it was found that for some applications the worst case static offset and repeatabilities were found to be smaller than allowed for in the determination of the Unit 2 setpoints. The initial settings for the Unit 1 switches use the Unit 2 values with the exception of the setpoint for Main Steam Line High Flow switches. In the future these setpoint values may be changed to take advantage of the more complete test data.

6. Description of Corrective Actions

On the basis of the setpoint characterization tests, the setpoints of the differential pressure switches will be revised prior to startup to provide additional margin for static pressure shift and repeatability. The revised setpoints and margins are listed in Table 3. These revisions will insure that the SOR DP switches will meet their Technical Specification requirements. Switches that do not meet the static shift and repeatability acceptance limits given in Table 3 will be replaced. New switches will be tested to verify that they meet these limits.

To provide additional assurances that the switches will function properly, the ECCS minimum flow switches have been tested at their new setpoints during system operation, and reactor water level drop tests have been performed on Unit 2 at pressures of 0.0, 950, and 500 psig to verify the level 3 switch setpoints. These level drop tests were performed during startup of Unit 2 following the recently completed outage and the 950 psig test will also be conducted during shutdown for the next refueling outage. On Unit 1, a 0.0 psig level drop test will be conducted to verify system operability prior to start-up and a 950 psig level drop test will be performed at shutdown for the second refueling outage. When plant conditions permit, a level drop test will be performed at approximately 950 psig during the first planned shutdown greater than 3 months after start-up. The calibration procedures will also be revised to require the instrument maintenance technician to record the first actuation as the "as-found" and to eliminate the effects of cycling. Instead of cycling

the switch between its trip and reset points, all actuations will be obtained by cycling from either zero or full-scale DP to simulate actual operating conditions. The procedures will also contain "action" and "rejection" limits. If a switch setpoint exceeds its action but not its rejection limit, its surveillance frequency will be adjusted as described in table 4. If its setpoint exceeds the rejection limit or the action limit on two consecutive surveillances, the switch will be replaced as described in Table 4.

After startup, a quarterly surveillance frequency will be established on these switches. In addition, the Unit 1 and Unit 2 level 3 switches will be calibrated at 2 weeks, 4 weeks, 2 months, and 4 months before they are put on a quarterly cycles.

A complete description of the corrective actions that will be taken can be found in Table 4 and in Reference 5.

REFERENCES

1. July 1, 1986, letter from C. Reed to J. G. Keppler transmitting LER 86-011-00.

2. August 8, 1986, letter from C.M. Allen to H. R. Denton transmitting the "Report of Investigation of Static-O-Ring Differential Pressue Switches".

3. July 21, 1986 letter from M.S. Turbak to H. R. Denton regarding the validity of 24 hour static pressure tests.

4. July 23, 1986, letter from M.S. Turbak to H. R. Denton transmitting daily and two week test data.

5. July 24, 1986, letter from M. S. Turbak to H. R. Denton transmitting the Unit 2 Executive Summary.

6. September 5, 1986, letter from C. M. Allen to H. R. Denton transmitting the Unit 1 Executive Summary.

TABLE 1
LIST OF INSTALLED SOR DP SWITCHES

SWITCH NUMBER	USE	SETPOINT	MODEL	RANGE
B21-N024A,B,C,D	LOW REACTOR WATER LEVEL 3-LOW LEVEL SCRAM AND PCIS GROUPS 6 AND 7	≥ +12.5" RWL (≤ 63.78" W.C. increasing)	103AS-B212-NX-C1A-JJTTX6	7-100 in. W.C.
B21-N026AB,BB CB,DB	REACTOR WATER LEVEL -2 PCIS GROUPS 1 THRU 5	≥ -50" RWL (≤ 145.6" W.C. increasing)	103AS-BB203-NX-C1A-JJTTX6	20-200 in. W.C.
B21-N031A,B,C,D	REACTOR WATER LEVEL 2 - HPCS INITIATION	≥ -50" RWL (≤ 145.6" W.C. increasing	103AS-B203-NX-C1A-JJTTX6	20-200 in. W.C.
B21-N037AB,BB CB,DB	REACTOR WATER LEVEL -2 - RCIC INITIATION	≥ -50" RWL (≤ 145.6" W.C. increasing)	103AS-B203-NX-C1A-JJTTX6	20-200 in. W.C.
			103AS-BB205-NX-C1A-JJTTX6	40-300 in. W.C.
B21-N037AA,BA CA,DA	REACTOR WATER LEVEL 1-ECCS INITIATION	≥ -129" RWL (≤ 202.2" W.C. increasing)		
B21-N038A,B	REACTOR WATER LEVEL 3- ADS PERMISSIVE	≥ +12.5" RWL (≤ 63.78" W.C. increasing)	103AS-B212-NX-C1A-JJTTX6	7-100 in. W.C.

TABLE 1
LIST OF INSTALLED SOR DP SWITCHES

SWITCH NUMBER	USE	SETPOINT	MODEL	RANGE
2E12-N010AA	OPENS RHR A MIN FLOW BYPASS VALVE ON LOW FLOW	≥ 1000 gpm (≥ 5.9" W.C. decreasing)		
AB	ALARM SWITCH	≥ 1500 gpm (≥ 13.3" W.C. decreasing)	103AS-B202-NX-C1A-JJTTX7	5-35 in W.C.
BA	OPENS RHR B MIN FLOW BYPASS VALVE ON LOW FLOW	≥ 1000 gpm (≥ 5.9" W.C. decreasing)		
BB	ALARM SWITCH	≥ 1500 gpm (≥ 13.3" W.C. decreasing)		
CA	OPENS RHR C MIN FLOW BYPASS VALVE ON LOW FLOW	≥ 1000 gpm (≥ 5.9" W.C. decreasing)		
CB	ALARM SWITCH	≥ 1500 gpm (≥ 13.3" W.C. decreasing)		
E21-N004	OPENS LPCS MINIMUM FLOW BYPASS VALVE ON LOW FLOW	≥ 750 gpm (≥ 4.38" W.C. decreasing)	103AS-B202-NX-C1A-JJTTX7	5-35 in. W.C.
E22-N006	OPENS HPCS MIN FLOW BYPASS VALVE ON LOW FLOW	≥ 1000 gpm (≥ 9.7" W.C. decreasing)	103AS-B202-NX-C1A-JJTTX7	5-35 in. W.C.
B21-N101B (Unit 2 only)	RX LEVEL 8-RCIC TRIP	≤ 55.5" RWL (≥ 33.5" W.C. decreasing)	103AS-B212-NX-C1A-JJTTX6	7-100 in. W.C.
E31-N007AA,AB	RCIC/RHR HIGH STEAM LINE FLOW ISOLATION	≤ 123" W.C. increasing	103AS-B203-NX-C1A-JJTTX7	20-200 in. W.C.
E31-N007BA,BB	RCIC/RHR HIGH STEAM LINE FLOW ISOLATION	≤ 87" W.C. increasing	103AS-B203-NX-C1A-JJTTX7	20-200 in. W.C.

TABLE 1
LIST OF INSTALLED SOR DP SWITCHES

SWITCH NUMBER	USE	SETPOINT	MODEL	RANGE
E31-N008A,B,C,D	MAIN STEAM LINE HIGH FLOW ISOLATION	≤ 111 psid increasing	102AS-B305-NX-C1A-JJTTX6	100-500 psid
E31-N009A,B,C,D	MAIN STEAM LINE HIGH FLOW ISOLATION	≤ 111 psid increasing	102AS-B305-NX-C1A-JJTTX6	100-500 psid
E31-N010A,B,C,D	MAIN STEAM LINE HIGH FLOW ISOLATION	≤ 111 psid increasing	102AS-B305-NX-C1A-JJTTX6	100-500 psid
E31-N011A,B,C,D	MAIN STEAM LINE HIGH FLOW ISOLATION	≤ 111 psid increasing	102AS-B305-NX-C1A-JJTTX6	100-500 psid
E31-N012AA,BA AB,BB	RHR HIGH SUCTION FLOW ISOLATION (Shutdown Cooling)	≤ 180" W.C. increasing	103AS-B203-NX-C1A-JJTTX6	20-200 in. W.C.
E31-N013AA,BA AB,BB	RCIC HIGH STEAM FLOW ISOLATION	≤ 178" W.C. increasing	103AS-B203-NX-C1A-JJTTX6	20-200 in. W.C.

TABLE 2

SUMMARY OF SETPOINT CHARACTERIZATION TESTS RESULTS FOR UNIT 2

SWITCH APPLICATION	24-HR.STATIC TEST SAMPLE SIZE	24 HOUR STATIC PRESSURE SHIFT RESULTS	REPEATABILITY TEST SAMPLE SIZE	REPEATABILITY RESULTS
-REACTOR VESSEL LEVEL 3	100% (6 switches)	2.2 - 6.1 INCHES W.C.(1)	100% (6 switches)	Less Than 2%
-REACTOR VESSEL LEVEL 2 -REACTOR VESSEL LEVEL 1	44% (7 switches)	2.5 - 6.9 INCHES W.C.	100% (16 switches)	Less Than 2%
-REACTOR VESSEL LEVEL 8	100% (1 switch)	3.4 INCHES W.C.	100% (1 switch)	Less Than 2%
-RHR/RCIC STEAMLINE BREAK) -RHR SHUTDOWN COOLING LINE) -RCIC STEAM LINE BREAK)	8% (1 switch)	6 INCHES W.C. (Conservative)	100% (12 switches)	Less Than 2%
-RHR LPCI-A,B,C MIN. FLOW) -LPCS MIN. FLOW) -HPCS MIN. FLOW)	25% (2 switches)	3.1 INCHES W.C.	62.5% (5 switches)	Less Than 4%
-MAIN STEAM LINE HI FLOW	100% (16 switches)	2 - 15.5 PSID	100% (16 switches)	1.45 - 10.5 PSID

NOTES: (1) Switches exceeding 3.0 inches W.C. were replaced with switches that have a static shift of 3.0 inches W.C. or less.

TABLE 2

SUMMARY OF SETPOINT CHARACTERIZATION TESTS RESULTS FOR UNIT 1

Switch Application	24-Hour Static Pressure Test Sample Size	24-Hour Static Pressure Shift Results	Repeatability Test Sample Size	Repeatability Results
-Reactor Vessel Level 3	100% (6 switches)	0.9"-5.4" W.C.(1)	100% (6 switches)	Less Than 2%
-Reactor Vessel Level 2	100% (12 switches)	-0.9"-+5.0" W.C.	100% (12 switches)	Less Than 2%
-Reactor Vessel Level 1	100% (4 switches)	2.9"-6.0" W.C.	100% (4 switches)	Less Than 2%
-RHR/RCIC Steamline Break -RHR Shutdown Cooling Line -RCIC Steam Line Break	100% (12 switches)	-6.9"-+6.3"W.C.	100% (12 switches)	0.3% to 3.3% (2)
-RHR LPCI-A,B,C Min. Flow -LPCS Min. Flow -HPCS Min. Flow	37.5% (3 switches)	-2.08-+3.61"W.C.	100% (8 switches)	0.5% to 11%
-Main Steam Line HI Flow	100% (16 switches)	-1.3-7.7 PSID	100% (16 switches)	0.1% to 0.7%

Notes: (1) Switches exceeding 3.0" W.C. were replaced with switches 3.0" W.C. or less.

(2) Switches with repeatability exceeding 2% of adjustable range will be replaced with switches with 2% or less.

TABLE 3
SETPOINT CHARACTERIZATION TESTING
CONCLUSIONS FOR UNIT 2

SWITCH APPLICATION	MARGIN FROM LCO				EXISTING L.C.O.	NEW SETPOINT
	STATIC SHIFT	REPEATABILITY [4]	EXISTING TECH SPEC. DRIFT	TOTAL		
-REACTOR VESSEL LEVEL 3	4.2" RWL	2.6" RWL	1.5" RWL	8.4" RWL	11.0"RWL	19.4" RWL
-REACTOR VESSEL LEVEL 2	11.2" RWL	5.0" RWL	7.0" RWL	23.2" RWL	-57.0" RWL	-33.8" RWL
-REACTOR VESSEL LEVEL 1	11.2" RWL	7.3" RWL	7.0" RWL	25.5" RWL	-136.0" RWL	-110.5" RWL
-REACTOR VESSEL LEVEL 8	5.0" RWL	2.6" RWL	0.5" RWL	8.1" RWL	56.0" RWL	48.0" RWL
-RHR/RCIC STEAMLINE BREAK	8.0" W.C.	3.6" W.C.	5.0" W.C.	16.6" W.C.	128" W.C.	111.4" W.C.
-RHR SHUTDOWN COOLING LINE	8.0" W.C.	3.6" W.C.	6.0" W.C.	17.6" W.C.	186" W.C.	168.4" W.C.
-RCIC STEAM LINE BREAK	7.2% RATED FLOW	3.0% RATED FLOW	5.0% RATED FLOW	15.2% RATED FLOW	295% RATED FLOW	280% RATED FLOW
-RHR LPCI-A,B,C MIN. FLOW	237 GPM	73 GPM	450 GPM	1423 GPM[1]	550 GPM	1973 GPM
-LPCS MIN. FLOW	233 GPM	71 GPM	110 GPM	1079 GPM[2]	640 GPM	1719 GPM
-HPCS MIN. FLOW	151 GPM	50 GPM	100 GPM	640 GPM[3]	900 GPM	1540 GPM
-MAIN STEAM LINE HI FLOW	10.5 PSID (5)	15.5 PSID (5)	5.0 PSID	31.0 PSID	116 PSID	85 PSID (5)

NOTES: INCLUDES ADDITIONAL MARGIN OF 1) 663 GPM FOR LPCI 2) 664 GPM FOR LPCS AND 3) 339 GPM FOR HPCS

4) For applications other than main steam line high flow and ECCS minimum flow, repeatability for each switch tested was less than 2% of range; therefore 2% was used for repeatability. For mainsteam line high flow and ECCS minimum flow switches, repeatability of the most variable switch in service was used.

5) It is planned to improve this value in the future by replacement of the worst performing switches with switches that have better repeatability and static offset performance.

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TABLE 3

LASALLE COUNTY UNIT 1
SETPOINT CHARACTERIZATION TESTING CONCLUSIONS

Switch Application	Margin from LCO				Existing L.C.O.	Proposed New (6) Setpoint
	Static Shift	(4) Repeatability	Existing Tech Spec. Drift	Total		
-Reactor Vessel Level 3	4.2" RWL	2.6" RWL	1.5" RWL	8.4" RWL	11.0"RWL	19.4" RWL
-Reactor Vessel Level 2	11.2" RWL	5.0" RWL	7.0" RWL	23.2" RWL	-57.0" RWL	-33.8" RWL
-Reactor Vessel Level 1	11.2" RWL	7.3" RWL	7.0" RWL	25.5" RWL	-136.0" RWL	-110.5" RWL
-RHR/RCIC Steamline Break	8.0" W.C.	3.6" W.C.	5.0" W.C.	16.6" W.C.	128" W.C.	111.4" W.C.
-RHR Shutdown Cooling Line	8.0" W.C.	3.6" W.C.	6.0" W.C.	17.6" W.C.	186" W.C.	168.4" W.C.
-RCIC Steam Line Break	7.2% rated flow	3.0% rated flow	5.0% rated flow	15.2% rated flow	295% rated flow	280% rated flow
-RHR LPCI-A,B,C Min. Flow	268 gpm	216 gpm	450 gpm	1423 gpm[1]	550 gpm	1973 gpm
-LPCS Min. Flow	265 gpm	203 gpm	110 gpm	1079 gpm[2]	640 gpm	1719 gpm
-HPCS Min. Flow	171 gpm	146 gpm	100 gpm	640 gpm[3]	900 gpm	1540 gpm
-Main Steam Line HI Flow	8.0 psid (5)	5.4 psid (5)	5.0 psid	18.4 psid (5)	116 psid	97.6 psid (5)

NOTES: Includes Additional Margin of 1) 489 gpm for LPCI 2) 501 gpm for LPCS and 3) 223 gpm for HPCS

4) For applications other than main steam line high flow and ECCS minimum flow, repeatability for each switch tested was less than 2% of range; therefore 2% was used for repeatability. For mainsteam line high flow and ECCS minimum flow switches, repeatability of the most variable switch in service was used. Repeatability was calculated for each switch to bound 95% of the population with a 95% confidence level.

5) It is planned to improve these values in the future by replacement of the worst performing switches with switches that have better repeatability and static offset performance.

6) Since 100% of the switches were tested on Unit 1, the static offset and repeatabilities are known for every switch. This allows a knowledgeable setting of the switch which is not dependent on a bounding margin established for Unit 2 switches. The values shown in this column represent Unit 2 setpoints with the exception of the setpoint for Main Steam Line High Flow switches. These setpoints may be changed in the future to take advantage of the more complete test data.

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LASALLE COUNTY STATION UNIT 2

TABLE 4
CORRECTIVE ACTIONS

1.	Final LaSalle County Station Unit 2 SOR Investigation Report	Completed
2.	Flow testing to verify ECCS minimum flow switch setpoints	Completed
3.	Reactor water level drop tests to verify level 3 switch setpoints. Tests will be performed at approximately 0.0 PSIG, 950 PSIG, and 500 PSIG. The reactor will be held at 950 psig for at least 24 hours prior to the 950 psig Level Drop Test. Only one level drop test will be performed at each pressure.	During startup following current outage and during shutdown for the first refueling outage (approximately December 1986).
4.	Complete calibration procedure revisions	Completed

a. New setpoints including: static pressure shift, repeatability margin and drift margin.

b. New calibration methods including: The "as-found" setpoint will be the first actuation and during calibration the switch will be cycled from the appropriate 0% or 100% of differential pressure span to the setpoint.

c. "As-found" setpoint acceptance limits will be included into the procedures, and actions will be defined for each limit. The limits and actions will be the following:

(1) Action Limit

(a) Except Main Steam Line High Flow and ECCS minimum flow, ± 3% of adjustable range from new calibration setpoint.

(b) For main steam line high flow and ECCS minimum flow, this limit was 1.5X repeatability of the most variable switch in service. Repeatability was calculated for each switch to bound 95% of the data with a 95% confidence level.

(c) If this limit is exceeded, increase surveillance frequencies for the switch. The next surveillance will be performed at the same interval as the last surveillance within this limit.

(d) If this limit is exceeded during the second consecutive surveillance, the switch will be scheduled for replacement within 14 days.

TABLE 4 (cont.)

LaSalle County Unit 2

4. Complete calibration procedure revisions (cont.)

c. "As-found" setpoint acceptance limits (cont.)

(2) Rejection Limit

(a) ± (2% of adjustable range + tech. spec. margin for drift)

(b) For main steam line high flow and ECCS minimum flow, switches this limit is (repeatability + tech. spec. drift) for the most variable switch in service. Repeatability was calculated for each switch to 95% of the population with a 95% confidence level.

(c) If this limit is exceeded the switch will be rejected, and appropriate actions will be taken in accordance with the LaSalle County Technical Specifications.

5. Complete recalibration of switches with revised setpoints and revised procedures. — Prior to startup from current outage.

6. Implement Increased Surveillance — After startup from current outage.

a. The Level 3 switches will be calibrated 2 weeks after startup, 4 weeks after startup, 2 months after startup and 4 months after startup. After the fourth month, the level 3 switches will remain on a quarterly frequency. Note that this schedule assumes no problems occur with the limits as described above.

b. Main Steam Line Break Switches (16 switches) - At least four of the main steam line (MSL) switches will be calibrated 4 weeks after startup. Of the remaining 12 switches, at least four of the MSL switches will be calibrated 8 weeks after startup. Of the remaining eight switches, at least four of the MSL switches will be calibrated 12 weeks after startup. The maximum interval for each individual switch will be limited to a quarterly frequency.

TABLE 4 (cont.)

LaSalle County Unit 2

c. Remaining switches (37 switches) - A sample (grouped by model numbers) representative of the remaining switches (approximately 1/3) will be calibrated 4 weeks after startup. Of the remaining switches, approximately 1/3 will be calibrated 2 months after startup. The remaining switches will be calibrated 3 months after startup. The maximum interval for each individual switch will be limited to a quarterly frequency. The representative samples will be chosen, where possible, to include a sampling of various switch model numbers.

d. Switches placed in service that exceed the reject limit of this surveillance program will be sent to SOR for disassembly and inspection for cause of failure if the switch can be decontaminated and the cause of the failure if not obvious.

7. Complete evaluation of alternative level sensing instruments to replace SOR — 1-1-87

a. Review requirements
b. Review vendor environmental qualification data.
c. Review vendor performance test data.
d. Recommend technically acceptable alternatives.
e. Complete preliminary conceptual design and obtain reviews and approval. General description of key features affecting design installation, operation and maintenance, and project plan.
f. Initiate detailed conceptual design.

The alternative options being considered at this time include:
a. Installation of improved design SOR differential pressure switches.
b. Replacement of switches with analog transmitter/ trip units
   1) Partial replacement -- some applications.
   2) Complete replacement -- all applications.

If other viable alternatives become available, they will be considered also.

8. Establish acceptance limits for new SOR switches. The Purchase Order with SOR will be revised to require tests similar to setpoint characterization tests including a 24-hour test and to require switches perform within the static shift and repeatability limits. — Completed

TABLE 4

LaSalle County Unit 1

CORRECTIVE ACTIONS

1. Final LaSalle County Station Unit 1 SOR Investigation Report	This Executive Summary, dated 9/5/86
2. Unit 1 Flow testing to verify ECCS minimum flow switch setpoints	Prior to Startup
3. A reactor vessel level drop test will be performed at 0.0 psig in order to verify system operability. The results of the 950 psig level drop testing on Unit 2 was successful in proving that operability of the scram function may be relied upon by adjusting the switch setpoints to take into account the results found in the SOR setpoint characterization program. Additional thermal cycles, pressure tests and other challenges to the Unit 1 safety system equipment are not technically justified. When plant conditions permit, a level drop test will be performed at approximately 950 psig during the first planned shutdown greater than 3 months after startup.	0.0 psig test prior to startup following current outage, and 950 psig test greater than 3 months after startup and at shutdown for the next refueling outage.
4. Complete calibration procedure revisions	Week of 8-25-86

a. New setpoints including: static pressure shift, repeatability margin and drift margin.

b. New calibration methods including: The "as-found" setpoint will be the first actuation and during calibration the switch will be cycled from the appropriate 0% or 100% of differential pressure span to the setpoint.

c. "As-found" setpoint acceptance limits will be included into the procedures, and actions will be defined for each limit. The limits and actions will be the following:

(1) Action Limit

(a) Except Main Steam Line High Flow and ECCS minimum flow, ± 3% of adjustable range from new calibration setpoint.

4. Complete calibration procedure revisions (cont.)

c. "As-found" setpoint acceptance limits (cont.)

(b) For main steam line high flow and ECCS minimum flow, this limit was 1.5X repeatability of the most variable switch in service. Repeatability was calculated for each switch to bound 95% of the population with a 95% confidence level.

(c) If this limit is exceeded, the next surveillance will be performed at the same interval as the last successful surveillance within this limit.

(d) If this limit is exceeded during the second consecutive surveillance, the switch will be scheduled for replacement within 14 days.

(2) Rejection Limit

(a) ± (2% of adjustable range + tech. spec. margin for drift)

(b) For main steam line high flow and ECCS minimum flow, switches this limit is (repeatability + tech. spec. drift) for the most variable switch in service. Repeatability was calculated for each switch to 95% of the population with a 95% confidence level.

(c) If this limit is exceeded the switch will be rejected, and appropriate actions will be taken in accordance with the LaSalle County Technical Specifications.

5. Complete recalibration of switches with revised setpoints and revised procedures. — Prior to startup from current outage.

6. Implement Increased Surveillance — After startup from current outage.

a. The Level 3 switches will be calibrated 2 weeks after startup, 4 weeks after startup, 2 months after startup and 4 months after startup. After the fourth month, the level 3 switches will remain on a quarterly frequency. Note that this schedule assumes no problems occur with the limits as described above.

b. Main Steam Line Break Switches (16 switches) - At least four of the main steam line (MSL) switches will be calibrated 4 weeks after startup. Of the remaining 12 switches, at least four of the MSL switches will be calibrated 8 weeks after startup. Of the remaining eight switches, at least four of the MSL switches will be calibrated 12 weeks after startup. The maximum interval for each individual switch will be limited to a quarterly frequency.

c. Remaining switches (36 switches) - A sample (grouped by model numbers) representative of the remaining switches (approximately 1/3) will be calibrated 4 weeks after startup. Of the remaining switches, approximately 1/3 will be calibrated 2 months after startup. The remaining switches will be calibrated 3 months after startup. The maximum interval for each individual switch will be limited to a quarterly frequency. The representative samples will be chosen, where possible, to include a sampling of various switch model numbers.

d. Switches placed in service that exceed the reject limit of this surveillance program will be sent to SOR for disassembly and inspection for cause of failure if the switch can be decontaminated and the cause of the failure if not obvious.

7. Complete evaluation of alternative level sensing instruments to replace SOR — 1-1-87

a. Review requirements
b. Review vendor environmental qualification data.
c. Review vendor performance test data.
d. Recommend technically acceptable alternatives.
e. Complete preliminary conceptual design and obtain reviews and approval. General description of key features affecting design installation, operation and maintenance, and project plan.
f. Initiate detailed conceptual design.

TABLE 4 (cont.)

LaSalle County Unit 1

	The alternative options being considered at this time include: a. Installation of improved design SOR differential pressure switches. b. Replacement of switches with analog transmitter/ trip units 1) Partial replacement -- some applications. 2) Complete replacement -- all applications. If other viable alternatives become available, they will be considered also.	
8.	Establish acceptance limits for new SOR switches. The Purchase Order with SOR will be revised to require tests similar to setpoint characterization tests including a 24-hour test and to require switches perform within the static shift and repeatability limits.	Completed