August 25, 2003

MEMORANDUM TO: Stuart Richards, Chief
Inspection Program Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Patrick D. O'Reilly
Operating Experience Risk Applications Branch
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

FROM: Mark F. Reinhart, Section Chief /***RA/***
Licensing Section
Probabilistic Safety Assessment Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: RESULTS OF THE LASALLE NUCLEAR POWER STATION UNITS 1 AND 2 SDP PHASE 2 NOTEBOOK BENCHMARKING VISIT

During February, 2003, NRC staff and contractors visited the Exelon Generation Company office in Warrenville, IL to compare the LaSalle Significance Determination Process (SDP) Phase 2 notebook and licensee's risk model results to ensure that the SDP notebook was generally conservative. The LaSalle PRA did not include most external initiating events (only fire initiators); so no sensitivity studies were performed to assess the impact of these initiators on SDP color determinations. In addition, the results from analyses using the NRC's draft Revision 3i Standard Plant Analysis Risk (SPAR) model for LaSalle were compared with the licensee's risk model. The results of the SPAR model benchmarking effort will be documented in the next revision of the SPAR (revision 3) model documentation.

The benchmarking visit identified that there was good correlation between the Phase 2 SDP Notebook and the licensee's PRA. The results indicate that the LaSalle Phase 2 notebook was generally more conservative in comparison to the licensee's PRA. The revision 1 SDP notebook will capture 85% (results matched or overestimated the licensee's PRA by one order of magnitude) of the risk significance of inspection findings. A summary of the results of comparisons of hypothetical inspection findings between the SDP notebook and the licensee's PRA are as follows.

Attachment: As stated

CONTACT: P. Wilson, SPSB/DSSA/NRR
415-1114

2% Underestimates Risk Significance
53% Match Risk Significance
32% Overestimates Risk Significance by 1 Order of Magnitude
13% Overestimates Risk Significance by 2 Orders of Magnitude

The Rev-1 SDP notebook has been significantly improved as a result of the benchmarking activity. The number of cases that the Rev-1 SDP would match that of the updated licensee's PRA has increased from 15 to 26. The number of over estimations dropped from 14 to 9 cases. In addition, the number of underestimations decreased from 3 to 1.

The licensee's PRA staff was very knowledgeable of the plant model and provided very helpful comments during the benchmark visit.

Attachment A describes the process and results of the comparison of the LaSalle SDP Phase 2 Notebook and the licensee's PRA.

Attachments: As stated

CONTACT: Peter Wilson, SPSB/DSSA/NRR
301-415-1114

2% Underestimates Risk Significance
53% Match Risk Significance
32% Overestimates Risk Significance by 1 Order of Magnitude
13% Overestimates Risk Significance by 2 Orders of Magnitude

The Rev-1 SDP notebook has been significantly improved as a result of the benchmarking activity. The number of cases that the Rev-1 SDP would match that of the updated licensee's PRA has increased from 15 to 26. The number of over estimations dropped from 14 to 9 cases. In addition, the number of underestimations decreased from 3 to 1.

The licensee's PRA staff was very knowledgeable of the plant model and provided very helpful comments during the benchmark visit.

Attachment A describes the process and results of the comparison of the LaSalle SDP Phase 2 Notebook and the licensee's PRA.

Attachments: As stated

Distribution: SPSB: r/f S. Burgess RIII

Accession#ML032380123

G:\spsb\wilson\LaSallebench.wpd NRR-096

OFFICE	SPSB	SPSB:RIII	SPSB:SC
NAME	PWilson:nxh2	SBurgess	MReinhart
DATE	08/21/03	08/22/03	08/25/03

OFFICIAL RECORD COPY

SUMMARY REPORT ON BENCHMARKING TRIP TO

LaSalle NUCLEAR POWER STATION UNITS 1 AND 2

(February 24 - 28, 2003)

M.A. Azarm and P.K. Samanta
Brookhaven National Laboratory
Energy Sciences and Technology Department
Upton, NY 11973

June 23, 2003

ATTACHMENT A

TABLE OF CONTENTS

Page

List of Tables

Page

1. INTRODUCTION

A Benchmarking of the Risk-Informed Inspection Notebook for the LaSalle Nuclear Power Station was conducted between February 24 to 27, 2003 at the Exelon Generating Company office in Warrenville IL. NRC staff (M. Parker, M. Reinhart, and P. Wilson) and BNL staff (A. Azarm) participated in this Benchmarking exercise.

In preparation for the meeting, BNL staff reviewed the SDP notebook for the LaSalle Nulcear Power Station and evaluated a set of hypothetical inspection findings using the Rev. 0 SDP worksheets. In addition, NRC staff provided the licensee with a copy of the meeting protocol.

The major milestones achieved during this meeting were as follows:

1. Recent modifications made to the LaSalle PRA were discussed for consideration in the Rev. 1 model to be prepared following benchmarking.

2. Importance measures, including the Risk Achievement Worths (RAWs) for the basic events in the internal event model for average maintenance, were obtained from the licensee.

3. Benchmarking was conducted using the Rev. 0 SDP model and the revised SDP model considering the licensee's input and other modifications that were judged necessary based on comparison of the SDP model and the licensee's detailed model.

4. For cases where the color evaluated by the SDP notebook differed from that based on the RAW values generated by the updated licensee's PRA, a judgment about the difference was made based on the detailed base case results available for the plant. Minimal cutsets evaluating the impact of the hypothetical inspection findings were reviewed to identify the reasons for the differences.

Significant changes were deemed necessary to the Rev. 0 SDP model to complete the Rev. 1 SDP notebook. This is because significant differences between the Rev. 0 model and the latest plant model, as represented by the dominant cutsets or the risk contributors in the base case core damage frequency model, were noted. As a result of benchmarking, the SDP notebook now reflects the plant-specific characteristics within the framework of the SDP modeling approach considering the latest plant-specific PRA for the plant.

2. SUMMARY RESULTS FROM BENCHMARKING

Summary of Benchmarking Results

Benchmarking of the SDP notebook for the LaSalle Nuclear Power Station (LNPS) was conducted comparing the order-of-magnitude results obtained using the notebook with that obtained using the plant-specific PRA. Cases for which the SDP notebook results were under or overestimates were identified. Six cases of a conservative result by two orders of magnitude (i.e., the significance obtained using the notebook is two colors higher than that to be obtained using the plant PRA) and fifteen cases of conservative results by one order of magnitude were noted. In addition, one case of underestimation by one color was noted. A summary of the results of the risk characterization of hypothetical inspection findings is as follows:

2%	(1 of 47 cases)	underestimation of risk significance
13%	(6 of 47 cases)	overestimation of risk significance by two orders of magnitude
32%	(15 of 47 cases)	overestimation by one order of magnitude
53%	(25 of 47 cases)	consistent risk significance.

Detailed results of Benchmarking are summarized in Table 1. Table 1 consists of eight columns. The first two columns identify the components/failed operator actions or the case runs. The assigned colors from the Rev. 0 SDP worksheets without incorporating any modification from the Benchmarking exercise are shown in the third column. The fourth column gives the basic event name in the plant PRA used to obtain the risk achievement worth (RAW) for the out of service component or the failed operator action. The fifth and sixth columns respectively show the licensee's internal RAW value and the color to be defined based on the RAW values from the latest PRA model. The seventh column presents the colors for the inspection findings based on the Rev. 1 version of the notebook. The Rev. 1 version of the notebook is prepared considering the revisions to the Rev. 0 version of the SDP notebook judged applicable following Benchmarking. The last column provides comments identifying the difference in results between the Rev. 1 SDP notebook and the plant PRA, and the applicable rules in obtaining the color of the inspection finding using the SDP notebook.

Table 2 presents a summary of the comparisons between the results obtained using the LaSalle Nuclear Power Station notebook and the plant PRA. It also shows a comparison of the results using the Rev. 0 and Rev. 1 versions of the notebook. The results show that overestimations by the notebook were reduced through revisions to the notebook implemented as a result of Benchmarking. The overestimations were reduced from 79% to 45%. The underestimations remained unchanged at 2%. The matches between the notebook and the plant PRA increased from 19% to 53%.

Discussion of Non-conservative Results or Underestimations by the Notebook

One case of underestimation was noted during the Benchmarking. It related to the operator failure to recover offsite power within 20 hours. Reasons for this underestimation can be summarized as follows:

1. Following a loss of offsite power, with failure of the diesel generators but successful operation of the HPCS pump, recovery of the offsite power was needed within 20 hours for containment heat removal. If CHR and CV failed, HPCS survival was addressed. HPCS survival was given a credit of 1 in the SDP notebook, but the assigned probability in the PRA was 0.36. This difference, along with a factor of 2 difference in the LOOP frequency, resulted in the underestimation for the risk significance of this operator action.

Discussion of Conservative Results by the Notebook

Twenty one cases of overestimation (six cases by two colors and fifteen cases by one color) were noted during Benchmarking. Below are some general observations regarding the overestimations by the SDP notebook and a discussion of the overestimations by more than one color.

1. In the SDP notebook, use of RHR trains in SPC or SDC mode was assigned a credit of 1 multi-train system, equivalent to an unavailability of 1E-3. In the plant PRA, the combined unavailability for these failure modes was approximately an order of magnitude lower.

2. In the SDP notebook, considering the dependency of the RHR/LPCI and LPCS pumps on the two trains of the CSCS system, a mitigation credit of “1 multi-train system” was assigned for the 3 RHR/LPCI trains and 1 LPCS train. In special initiators like a loss of a DC bus, since one CSCS train remained available, a credit of “1 train” was assigned even when multiple pump-trains remained available because of the common dependency on the remaining one train of CSCS. In the plant PRA, common-cause failure probability of both the CSCS trains is approximately 3E-5 which was more than an order of magnitude lower compared to 1E-3 for 1 multi-train system. Similarly, failure of 1 CSCS train was approximately 1E-3 which was one order of magnitude lower compared to 1E-2 for 1 train in the SDP notebook.

3. In the SDP notebook, RCIC was assigned a credit of 1 ASD train, equivalent to an unavailability of 1E-1. In the plant PRA, RCIC unavailability was approximately 2E-2.

4. The ATWS frequency in the plant PRA was approximately 2E-6 per reactor-year. In the SDP notebook, ATWS was assigned to Row V corresponding to a frequency of 1E-5 per reactor-year.

An overestimation by two colors was noted for the HPCS pump, 1 SBLC train, both diesel-driven fire pumps, 1 SRV failing to close, ECCS HVAC South West (SW) corner room and ECCS HVAC North East (NE) corner room.

1. The overestimation of the risk significance of the HPCS pump by two orders of magnitude results primarily from the difference in the failure/unavailability data used in the PRA and the credits used in the SDP notebook. Following the failure of the HPCS pump, RCIC and low pressure injection pumps played an important role. RCIC was assigned a credit of 1 ASD train, equivalent to 1E-1, whereas in the PRA the combined unavailability was approximately 2E-2. The unavailability of 3 LPCI pumps was assigned a credit of 1 multi-train system, equivalent to 1E-3 which was more than an order of magnitude higher than the unavailability in the PRA.

2. The overestimation of 1 SBLC pump by two orders of magnitude was attributed to the difference in ATWS frequency and the success criteria for the SBLC pumps. ATWS was assigned to Row V in the SDP notebook but has a frequency of approximately 2E-6/reactor-year in the plant PRA. Also, in the plant PRA, 1 of 2 SBLC pumps was needed if the operators initiated the SBLC within a short time. In the SDP notebook, 2 of 2 pumps were assumed needed since the human error probability for operator succeeding in a short time was assumed high.

3. The overestimation of both diesel-driven fire pumps by two orders of magnitude was attributed to the difference in credit between the notebook and the plant PRA for suppression pool cooling and in crediting recovery actions. As discussed earlier, use of RHR in SPC was assigned a credit of 1 multi-train system in the notebook, but the corresponding PRA unavailability was approximately an order of magnitude lower. Also, the PRA credited different recovery actions which were not credited in the notebook. Specific to the diesel-fire pumps, recovery of instrument air with a probability of 1E-01 following a loss of instrument was used in the PRA. This also contributed to the overestimation.

4. The overestimation of 1 SRV failing to close by two orders of magnitude was attributed to the difference in credit between the notebook and the plant PRA for the CSCS trains which cools the RHR/LPCI and LPCS pumps, and the assumptions for room cooling needs. The dominant contributor for a stuck-open SRV was the failure of HPCS, LPCS, and RHR/LPCI. These pumps depend on CSCS trains for pump and room cooling. Difference in credit for the CSCS trains and the assumptions in the PRA for the room cooling needs contributed to the overestimation.

- The ECCS SW room houses the HPCS pump. Failure of HVAC in this room was assumed to lead to HPCS failure. The reason for overestimation for this case was the same as that for the HPCS pump, as discussed in item 1 above.

- The ECCS NE room houses the RCIC and LPCS pumps. In the SDP notebook, failure of HVAC was assumed to lead to failure of the RCIC and LPCS pumps. In the plant PRA, RCIC was assumed to be operable without HVAC for 7 hours. In other words, failure of HVAC in the room will only affect RCIC operation for longer term. In the SDP evaluation, RCIC was assumed to fail also in the short term. This difference in assumption resulted in the two orders of magnitude overestimation.

Changes Incorporated Following Benchmarking

The results obtained during benchmarking were conservative in most cases resulting in further review of the models in comparison with the detailed cutsets provided by the licensee. Based on review of these cutsets and other related information, modeling in the SDP notebooks was substantially revised. This resulted in revised event trees and worksheets for all initiators. The changes made to complete the Rev. 1 notebook are listed in Section 3. Changes following the benchmarking are not separately addressed here.

Table 1: Summary of Benchmarking Results for LaSalle

Internal Events CDF is 3.5E-6/reactor-year at Truncation level 1E-10
RAW Thresholds are W = 1.29, Y = 3.86, R = 29.57, RR= 286.7[(1)]

No.	Component Out of Service or Failed Operator Action	Rev. 0 SDP Work-sheet Color	LaSalle Basic Event Designator	LaSalle RAW	Color by LaSalle RAW	Rev. 1 (Mod. SDP Worksheet) Color	Comparisons and Comments
	Component						
1.	HPCS	R	2HCPM–HPCS–M	3.15	W	R	Over; two orders of magnitude
2.	1 CRD Pump	W	Truncated	~1.0	G	G	
3.	RHR tain A or B HX (SPC Mode)	R	2RHHETRAINB–M	5.31	Y	Y	
4.	EDG-3	Y	2DGDG-DG2B–X--	1.72	W	Y	Over; one order of magnitude
5.	RCIC	Y	2RIPT2E51C002A	2.28	W	Y	Over; one order of magnitude
6.	PCS (Steam)	R	%TC	1.29	W	W	
7.	PCS (TDFW PUMP)	W	2FWPMTURDRINEAF	1.0	G	G	
8.	1 SRVs fto (ATWS)	W	Truncated	1.0	G	G	

No.	Component Out of Service or Failed Operator Action	Rev. 0 SDP Work-sheet Color	LaSalle Basic Event Designator	LaSalle RAW	Color by LaSalle RAW	Rev. 1 (Mod. SDP Worksheet) Color	Comparisons and Comments
9.	1 SRV ftc	R	Case Run	1.2	G	Y	Over; two orders of magnitude. Case run was used to obtain the RAW
10.	LPCS	G	2LC–LPCS–M	1.01	G	G	
11.	RHR - pump C	G	2RHPME12C002CA	1.01	G	W	Over; one order of magnitude
12.	RHR - pump A or B	R	2RHHETRAINB–M--	5.62	Y	Y	
13.	1 DD Fire Pump (A)	W	2FPPM-DFPA–X--	1.05	G	W	Over, one order of magnitude
14.	Both DD fire pumps (A &B)	W	2FPPM-DFPA–B–ACC	1.25	G	Y	Over; two orders of magnitude
15.	1 SBLC train	G	2SLMVSLCF001BD	1.02	G	Y	Over; two orders of magnitude
16.	Both SBLC pumps	W	2SLPMSLCPMA&BACC	2.59	W	Y	Over; one order of magnitude
17.	EDG 2A	R	2DGDG–DG2A–X--	1.17	G	W	Over, one order of magnitude
18.	EDG Shared	Y	BDGDG-DG0–X--	1.74	W	W	
19.	4160 AC 241Y/Div 1	R	%TAC242Y	17.38	Y	R	Over; one order of magnitude
20.	4160 AC 242Y/Div 2	R	%TAC241Y	28.98	Y	R	Over; one order of magnitude

No.	Component Out of Service or Failed Operator Action	Rev. 0 SDP Work-sheet Color	LaSalle Basic Event Designator	LaSalle RAW	Color by LaSalle RAW	Rev. 1 (Mod. SDP Worksheet) Color	Comparisons and Comments
21.	DC Bus Div 1	R	%TDCA	53.	R	R	
22.	DC Bus Div 2	R	%TDCB	9.78	Y	R	Over, one order of magnitude
23.	One Battery	R	2DCBY2DC07E–F--	5.9	Y	R	Over, one order of magnitude
24.	One Battery Charger	R	2DCBC2DC09E–F--	51.68	R	R	
25.	Loss of Instrument Air	R	%TIA	8.6	Y	Y	
26.	Loss of an air Compressor	R	2SACM2SA01C–X--	1.62	W	W	
27.	1 SW pump	G	2WSPMPSW2B–X--	1.04	G	G	
28.	Loss of SW	Y	%TSW	23.78	Y	Y	
29.	one CSCS pump (Div 2) dedicated	R	2DGPMCS2DG01PR	7.29	Y	R	Over, one order of magnitude
30.	1 RBCCW pump	W	%RBCCW	1.01	G	G	
31.	TBCCW	R	%TBCCW	5.87	Y	Y	

No.	Component Out of Service or Failed Operator Action	Rev. 0 SDP Work-sheet Color	LaSalle Basic Event Designator	LaSalle RAW	Color by LaSalle RAW	Rev. 1 (Mod. SDP Worksheet) Color	Comparisons and Comments
32.	1 TBCCW pump	G	2WTPM2WT01PB-A--	1.01	G	G	One pump is G under all conditions
33.	one CV path	W	Case Run	1.0	G	G	
34.	ECCS HVAC-SE Corner (Div 2 RHR)	R	2RHFNSECORNERM--	7.85	Y	Y	
35.	ECCS HVAC SW Corner (HPCS, CRD)	R	2RHFNSWCORNERM-	3.07	W	R	Over, two orders of magnitude
36.	ECCS HVAC NW Corner (RHR Div 1)	R	2RHFNNWCORNERM-	4.64	Y	Y	
37.	ECCS HVAC NE Corner (LPCS, RCIC)	Y	2SYFNNECORNERM-	1.04	G	Y	Over, two orders of magnitude
	Operator Actions						
38.	DEP	R	2ADOP-DEP-ADSH-	35.61	R	R	
39.	Cont. Venting	R	2CVOPVENT–H--	2.82	W	W	
40.	LI	R	case run	1.68	W	W	Case run was used to obtain the RAW
41.	SLC	W	2SLOB-TT-LATEH	2.59	W	Y	Over, one order of magnitude
42.	INH	W	2ADOP-INHIB-HPH--	1.06	G	G	

No.	Component Out of Service or Failed Operator Action	Rev. 0 SDP Work-sheet Color	LaSalle Basic Event Designator	LaSalle RAW	Color by LaSalle RAW	Rev. 1 (Mod. SDP Worksheet) Color	Comparisons and Comments
43.	REC6	W	BACRXLOOP7HRSH	1.02	G	G	
44.	REC20	Y	BACRXDLOOP20HH	2.51	W	G	Under, one order of magnitude
45.	Trip Recirc. Pump	Y	2RTCBRPTB03AAD--	2.6	W	Y	Over, one order of magnitude
46.	Align RHR for SPC mode	R	2RHMV-F048AB-KCC	206.24	R	R(3)[(a)]	Over, one order of magnitude
47.	DDFIRE PUMP ALIGNMENT HARSH ENVIR.	W	BFPOP-DFPENV-H	1.69	W	Y	Over, one order of magnitude.

Note:

a) R(3) represents a Red finding with CDF impact between 1E-3 and 1E-2. R represents a Red finding with a CDF impact between 1E-4 and 1E-3. Thus, R(3) finding is an order of magnitude higher than a R finding.

Table 2: Comparative Summary of the Benchmarking Results

		SDP Worksheets (Rev. 0)		SDP Worksheets Modified (Rev. 1)	
		Number of Cases	**Percentage**	**Number of Cases**	**Percentage**
SDP: Non-Conservative		1	2	1	2
SDP: Conservative by	1 order	27	58	15	32
	2 orders	10	21	6	13
SDP: Matched		9	19	25	53
Total		47	100	47	100

3. ADDITIONAL PROPOSED MODIFICATIONS TO SDP WORKSHEETS

3.1 Specific Changes to the Rev. 0 SDP Worksheets for LaSalle

The changes made to the LaSalle notebook to develop the Rev. 1 version during and after the plant onsite benchmarking visit are summarized here and are also included in the updated notebook.

Changes made to LaSalle Rev. 0 Notebook to complete the Rev. 1 Notebook

1. Changes made to Table 2

    1. PCS: steam side is included as a separate system. Bypass valves, main condenser, and MSIVs were noted as major components.

    2. For HPCS, it is clarified that Div. 3 CSCS cools EDG 3 (HPCS EDG) and provides room cooling for HPCS. A footnote was added.

    3. For RCIC, dependency on Div 1 of 125 VDC was noted.

    4. For CRD, dependency on Div 1 and Div 2 4.16 kV AC and 125 VDC was clarified.

    5. For the depressurization system, it is noted that there are 13 SRVs including 7 ADS valves. A footnote is added to indicate that loss of one division of DC will not prevent operation of SRVs.

    6. For containment venting, dependency on both Div 1 and Div 2 120 VAC power was noted.

    7. For Recirculation Pump Trip (RPT), dependency on normal 125 VDC was noted.

    8. For Standby Liquid Control (SBLC), dependency on DC power is deleted. Dependency on 480 VAC power was noted.

    9. EDG configuration for the units and the role of the shared EDG were clarified.

    10. It was noted that there are two chargers per battery. A footnote was added stating that the redundant charger needs to be aligned manually from the control room.

    11. The functions of the CSCS pumps were specifically noted under CSCS.

    12. For instrument air/service air system, it is noted that there are 3 compressors shared between the units.

    13. AC and DC dependency of the normal service water system were clarified. It is noted that the system is shared between the units.

    14. Diesel-driven fire pumps were added as a separate row in the table.

2. Changes to SDP worksheets and event trees

2.1 Modeling of accident sequences was modified to include survival of HPCS and CRD pumps following failure of CHR and CV. Based on the LaSalle analysis of survival of HPCS and CRD pumps under such conditions, a credit of 1 was assigned for survival. The probability that the pumps fail to survive in the LaSalle PRA was 0.36. Following failure to survive, late injection under harsh environment using diesel-driven pumps was modeled with an operator action credit of 1.

2.2 For successful operation of RCIC, but failure of CHR and CV, late injection is credited. It is considered late injection under harsh environment and is conducted using the diesel-driven pumps which can inject through the feedwater nozzles.

2.3 Mitigation capability for DEP function was changed to 2/13 relief valves with operator action credit of 3 in all applicable cases.

2.4 Mitigation credit for low pressure injection (LPI) was changed to 1 multi-train system because of the common dependency of the RHR/LPCI pumps and LPCS pump on the CSCS system. For special initiators, when only one train of CSCS remained available a credit of 1 train was assigned because of the dependency of the pumps on the single train of CSCS.

2.5 In the TPCS worksheet, use of the motor-driven feed pump (MDFP) was modeled as a separate function and the operator action credit was changed to 2, based on the plant-specific HEP.

2.6 In the LDC1 worksheet, LPI and CHR mitigation capabilities were modified to note that one of the RHR trains and LPCS train is lost due to the initiator.

2.7 In the LDC2 worksheet, LPI and CHR mitigation capabilities were modified to note that two of the RHR trains are lost, but LPCS is unaffected due to the initiator.

2.8 LOIA worksheet and event tree were modified to credit CRD pumps since they are not affected by instrument air.

2.9 The SORV event tree and worksheet were modified to remove credit for condensate pumps as low pressure injection source.

2.10 In LLOCA, credit for use of RHR in CSC mode for early containment mode was deleted.

2.11 In the LOOP worksheet, CV is not credited unless offsite power is recovered. In this event, following success of EAC, the event progresses similar to a LOIA.

2.12 ATWS event tree and worksheet were modified to remove credit for PCS but retain the use of the MDFP. Operator action credit for using the MDFP was changed to 2.

2.13 In the ATWS worksheet, the mitigation capability for overpressure protection (OVERP) was changed to 12/13 SRVs.

2.14 In the ATWS worksheet, operator action credit for use of SBLC and HPCS was changed to 2 based on plant-specific HEPs.

3.2 Generic Changes in IMC 0609 for Guidance to NRC Inspectors

None.

3.3 Generic Change to the SDP Notebooks

None.

4. DISCUSSION ON EXTERNAL EVENTS

LaSalle does not have an integrated external event PRA. The licensee noted that their IPEEE study for fire events was quantitative, but the IPEEE seismic analysis used the non-quantitative seismic margins method. Other external events were also qualitative.

The licensee's fire IPEEE, together with the supporting information (not in the IPEEE report), may provide enough information to estimate risk importance using an SDP methodology. The IPEEE used cable routing information for App. R SSD systems and selected other important IPE frontline systems together with a fire area analysis to develop lists of failed equipment due to a fire. Other systems were conservatively assumed to be failed since the precise cable routing information was not developed. Depending on damaged equipment, a LOOP might be assumed. This was then related to the fire initiating frequency and used in a PRA/IPE type analysis to develop accident sequences and CDF.

Thus, there may be sufficient information to provide insights to potential changes in color evaluation based on consideration of fire events, but not other external events.

ATTACHMENT 1. LIST OF PARTICIPANTS

Adel El-Bassioni	USNRR/NRC
Mike Parker	USNRC/Region III
Mark Reinhart	USNRR/NRC
Peter Wilson	USNRR/NRC
M. Ali Azarm	BNL
Robert Buell	INEEL
Thomas Daniels	Exelon/Erin Engineering
Terry Lanc	Exelon
Xavier Polanski	Exelon
John Steinmetz	Exelon