

## REVIEW OF EXTERNAL EVENT AND LERF SDP RESULTS FOR MSPI SCOPE SINGLE FAILURES

1. Identified 26 SDP evaluations involving mitigating systems. Verified list with regions.
2. Identified 15 SDP evaluations that had non-green outcomes for single component failures and involved external events or LERF considerations in the mitigating systems cornerstone (see table).
3. Identified 9 SDP evaluations from number 2. that satisfied the MSPI scope:
  - Single active component failure.
  - Component in the MSPI system/component scope.
  - Failure detectable by periodic surveillance.

(See unshaded items in Table)

4. Results for MSPI scope:
  - None of the 9 SDP evaluations had a color change due to the External Events or LERF contribution to CDF when added to the internal events SDP result.
  - Two LERF events and possibly one external event SDPs could have been White without any contribution from internal events.
  - The largest External Events contribution was  $8.8 \times 10^{-7}$ ; the next largest was  $2.4 \times 10^{-7}$ ; and the next 7 were insignificant - not quantified.
  - The largest LERF contributions was  $6 \times 10^{-7}$ , the next largest was  $3 \times 10^{-7}$ , and the other 7 events were insignificant - not quantified.

A List of MSPI Events for 2000 - 2003 Period

No.	Plant	SDP Exposure time (Hrs.)	SDP Internal events	External events	Internal & External events	LERF	Final SDP color	Inspection Report No.	Standby component failed or inoperable?	ASP Internal events	ASP Exposure time (Hrs.)	SDP Event Description
1	Callaway, Note 24	8760	4.30E-06	None.	4.30E-06	None.	White	483/02-07	failed	Note 22	8760	CST foam liner found in AFW pump suction and MDAFW pump failed
2	Callaway	132	2.00E-06	None.	2.00E-06	None.	White	483/01-09	failed	Note 22	132	ESW pump B failed due to tygon tube in suction
3	Calvert Cliffs 1, Note 24	8760	6.20E-06	1.18E-05	2.00E-05	None.	Yellow	317/01-09	failed	7.3E-6, Note 21	8760	Contam bearing oil caused by excessive sealant and TDAFW pump failed to run
4	Columbia 2, Note 24	5216	1.24E-06	3.05E-06	4.29E-06	1.78E-07	White	397/02-05	failed	6.8E-6, Note 21	5216	Design inadeq in breakers MOC replacement part
5	DC Cook Unit 2	1920	4.40E-06	2.40E-07	4.64E-06	6.00E-07	White	316/02-02	failed	2.0E-5, Note 23	1920	AFWTDP faulty trip latch mechanism and TDAFW failed to run
6	Fermi	6312	5.40E-06	None.	5.40E-06	None.	White	341/01-09	failed	1.3E-6, Note 21	6185	EDG outboard bearing failure due to lack of lubrication
7	Millstone Unit 2	336	3E-6, Note 6	None.	3.00E-06	None.	White	336/00-011	failed	1.60E-06	336	Turbine speed control unresponsive and TDAFW failed to run
8	Perry	552	4.70E-06	None.	4.70E-06	2.90E-07	White	440/02-08	failed	4.3E-3, Note 21	552	HPCS pump breaker contacts misaligned and pump failed to start
9	Point Beach 2	408	White, Note 10	None.	white	None.	White	301/02-05	failed	3.8E-6, Note 21	396	SI accumulator leakage causes gas binding in HPI pump and failure to start
10	Salem Unit 1	283	8.64E-06	None.	8.64E-06	None.	White	272/02-10	failed	2.6E-6, Note 21	312	EDG turbocharger failed due to fatigue of inducer blade
11	Seabrook	72	1.30E-06	None.	1.30E-06	None.	White	443/00-11	failed	Note 22	72	EDG failed due to contaminated lube oil
12	Shearon Harris	1320	8.29E-06	8.79E-07	9.17E-06	None.	White	400/00-10	failed	4.20E-06	1320	C HPI pump outboard thrust bearing lost lubrication and failed to run
13	Surry 1, Note 24	4824	1.00E-05	2.20E-06	1.22E-05	None.	White	280/01-06	failed	6.0E-6, Note 21	4824	Swing EDG #3 wrist pin and bearing failure
14	Surry 2, Note 24	4824	2.70E-05	3.50E-06	3.05E-05	None.	White	280/01-06	failed	1.4E-5, Note 21	4824	Swing EDG#3 wrist pin and bearing failure
15	Three Mile Island 1	936	2.00E-06	None.	2.00E-06	None.	White	289/01-02	failed	2.5E-6, Note 21	936	Excessive oil leakage from MDEFW pump housing and failed to run.

**NON-GREEN SDP EVENTS QUALIFIED FOR MITIGATING SYSTEM  
PERFORMANCE INDICATORS FOR 4/2000 - 12/2003**

**Notes:**

1. ICDF = Increase in core damage frequency
2. SDP qualitatively assessed seismic-related ICDF to be lower than 1E-6.
3. SDP qualitatively assessed fire ICDF to be lower than 1E-6.
4. SDP qualitatively assessed HFO-related ICDF to be lower than 1E-6.
5. DC Cook 1 & 2- The SDP did not perform ICDF due to external events.
6. Millstone 2- SDP performed a Phase 3 analysis.
7. Davis Besse- LERF risk measure was evaluated to be insignificant.
8. Davis Besse- ICDF due to internal flooding was evaluated to be insignificant.
9. Dresden 3- Fire ICDF did not take credit for the safe shutdown system.
10. Point Beach 2- Only SDP Phase 2 was conducted since the finding involved self-revealing failure of the HPI pump.
11. Point Beach 1 & 2- Only SDP Phase 2 was conducted since the finding involved AFW mini flow valve old design issue.
21. OERAB will issue ASP analysis soon.
22. ASP analysis will be completed soon.
23. DC Cook 2- ASP analysis for this event was evaluated in combination with the ASP analysis for IR 316-01-17
24. SDP event is not included in MSPi scope of events (SDP duration greater than one surveillance test interval).