OAK RIDGE NATIONAL LABORATORY
OPERATED BY
UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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NUCLEAR SAFETY INFORMATION CENTER
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Mr. Robert J. Colmar
Safety Program Evaluation Branch
Division of Safety Technology
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Colmar:

Biweekly Report for LER Screening Project

The biweekly report for the period ending October 23, 1981, for the LER Screening Project is enclosed. The attached listing presents those LERs selected as potentially significant first, followed by a listing of the remaining LERs that were reviewed during this 2 week period. A total of 15 LERs out of 90 that were reviewed were selected as potentially significant. A copy of the 15 potentially significant LERs are enclosed.

Sincerely yours,

G. T. Mays for

William R. Casto
Nuclear Safety Information Center

WRC:GTM:pc

Enclosures: As noted above.

cc: J. R. Buchanan
W. B. Cottrell
M. L. Ernst, NRR
R. B. Callaher
A. L. Lotts
F. J. Hebdon, AEOD
G. T. Mays
J. H. Swanks

LICENSEE EVENT REPORTS SCREENED AND IDENTIFIED AS POTENTIALLY SIGNIFICANT
BY NSIC FOR OFFICE OF NUCLEAR REACTOR REGULATION FOR
PERIOD ENDING OCT-23-1981

REACTOR NAME	DOCKET	YR	LER	REV	LETTER DATE	EVENT DATE	DCS #	POTENTIALLY SIGNIFICANT* CRITERIA		
KANSAS NUCLEAR	313	80	025	1	062281	071180	8107300066	3	0	0
OWNS FERRY 2	260	81	031	0	072281	070181	8107310393	2	0	0
UNSWICK 2	324	81	052	0	062981	060981	8108030398	6	0	0
YSTAL RIVER 3	302	81	033	0	071481	061681	8107280588	11	0	0
TCH 1	321	81	066	0	071781	070181	8107280235	12	0	0
INE YANKEE	309	81	012	0	071781	071081	8107280620	3	0	0
RTH ANNA 2	339	81	051	0	071581	062081	8107280375	9	0	0
ONEE 1	269	81	011	0	072381	071581	8108030156	13	0	0
ACH BOTTOM 2	277	81	035	0	070681	062281	8108030438	5	0	0
LGRIM 1	293	81	033	0	072181	062181	8107290128	11	0	0
INT BEACH 1	266	81	007	0	071081	062681	8107200080	6	1	0
BINSON 2	261	81	016	0	071081	061181	8108030344	13	0	0
LEM 1	272	81	062	0	072081	062181	8107280608	12	0	0
RRY 1	280	81	015	0	070381	060381	8107310446	5	0	0
RRY 2	281	81	036	0	070381	052881	8107310458	1	0	0

POTENTIALLY SIGNIFICANT LER'S-TOTAL 15.0

LICENSEE EVENT REPORTS SCREENED AND IDENTIFIED AS NON-SIGNIFICANT
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PERIOD ENDING OCT-23-1981

ACTOR NAME	DOCKET	YR	LER	REV	LETTER DATE	EVENT DATE	DCS #	NON-SIGNIFICANT		
KANSAS NUCLEAR	313	81	009	0	082681	072781	8109290399	0	0	0
NOLD	331	81	026	0	071581	061581	8107240501	0	0	0
AVER VALLEY 1	334	81	057	0	071081	061081	8107240108	0	0	0
AVER VALLEY 1	334	81	059	0	071381	061581	8107240335	0	0	0
AVER VALLEY 1	334	81	060	0	071581	061681	8107280332	0	0	0
AVER VALLEY 1	334	81	063	0	072181	062281	8107290072	0	0	0
G ROCK POINT	155	81	013	0	071681	061781	8107240383	0	0	0
OWNS FERRY 1	259	81	036	0	071581	061981	8107310303	0	0	0
OWNS FERRY 1	259	81	037	0	071081	062981	8108030221	0	0	0
OWNS FERRY 2	260	81	027	0	071081	060481	8108030234	0	0	0
OWNS FERRY 2	260	81	033	0	072381	070281	8108030203	0	0	0
OWNS FERRY 3	296	81	031	0	072181	062481	8107280290	0	0	0
OWNS FERRY 3	296	81	032	0	072281	070181	8107310347	0	0	0
UNSWICK 2	324	80	104	0	122380	112880	8012300579	0	0	0
UNSWICK 2	324	81	055	0	070881	061481	8108030333	0	0	0
UNSWICK 2	324	81	058	0	070681	062081	8107310266	0	0	0
OK 1	315	81	013	1	072281	053181	8107300051	0	0	0
OK 1	315	81	022	0	071781	061881	8107240153	0	0	0
CPER	298	81	012	0	061881	051981	8107280598	0	0	0
CPER	298	81	013	0	062481	052881	8107290629	0	0	0
YSTAL RIVER 3	302	81	032	0	071481	061681	8107280293	0	0	0
VIS-BESSE 1	346	80	039	1	071381	042380	8107240395	0	0	0
ESDEN 2	237	81	040	0	072181	062481	8107300067	0	0	0
ESDEN 3	249	81	018	0	070981	061981	8107240234	0	0	0
PLEY 1	348	81	040	0	063081	052981	8108030233	0	0	0
RLEY 1	348	81	045	0	070781	061381	8107310384	0	0	0
TZPATRICK	333	81	053	0	071081	062581	8107240258	0	0	0
TZPATRICK	333	81	055	0	071681	070181	8107280584	0	0	0
TCH 1	321	81	052	0	070981	062181	8107280382	0	0	0
TCH 1	321	81	056	0	070281	061081	8107310318	0	0	0
TCH 1	321	81	060	0	071581	062481	8107280407	0	0	0
TCH 1	321	81	063	0	071781	063081	8107280348	0	0	0
TCH 1	321	81	072	0	072181	070781	8107310170	0	0	0
TCH 1	321	81	078	0	072181	071281	8107310172	0	0	0
AUNEE	305	81	022	0	071781	061981	8107240166	0	0	0
AUNEE	305	81	023	0	072181	062181	8107280343	0	0	0
NE YANKEE	309	81	013	0	072181	070981	8107290026	0	0	0
LLSTONE 1	245	81	015	0	071781	061781	8107280486	0	0	0

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ACTOR NAME	DOCKET	YR	LER	REV	LETTER DATE	EVENT DATE	DCS #	NON-SIGNIFICANT		
ILSTONE 1	245	81	017	0	072081	062081	8107290143	0	0	0
RTH ANNA 1	338	81	041	0	070981	060981	8108030425	0	0	0
RTH ANNA 1	338	81	060	0	072281	062381	8108030217	0	0	0
ONEE 1	269	81	004	0	031381	021281	8107010339	0	0	0
ONEE 1	269	81	010	0	070281	060281	8107310255	0	0	0
ONEE 1	269	81	013	0	071481	063081	8107310244	0	0	0
ONEE 3	287	81	013	0	062681	052881	8108030315	0	0	0
STER CREEK	219	81	023	0	070681	060381	8107130458	0	0	0
LISADES	255	81	027	0	072181	062581	8107280193	0	0	0
LGRIM 1	293	81	027	0	071681	061681	8107280594	0	0	0
LGRIM 1	293	81	029	0	071781	061781	8107280454	0	0	0
LGRIM 1	293	81	032	0	072081	061981	8107280447	0	0	0
INT BEACH 1	266	81	008	0	071681	071081	8107240120	0	0	0
AIRIE ISLAND 1	282	81	007	0	072281	062281	8107300057	0	0	0
AD CITIES 2	265	81	012	0	061081	051881	8107160395	0	0	0
NCHO SECO	312	81	030	0	062281	060281	8106300467	0	0	0
BINSON 2	261	81	014	0	062281	052381	8108030247	0	0	0
BINSON 2	261	81	017	0	071681	061981	8107280300	0	0	0
LEM 1	272	81	060	0	071581	061281	8107240220	0	0	0
LEM 1	272	81	061	0	071681	061681	8107290084	0	0	0
LEM 2	311	81	046	0	072281	062281	8107290090	0	0	0
QUOYAH 1	327	81	062	0	062681	053181	8108030142	0	0	0
QUOYAH 1	327	81	073	0	072081	062981	8107280523	0	0	0
. LUCIE 1	335	81	026	0	062981	052981	8108030150	0	0	0
. LUCIE 1	335	81	027	0	061881	051981	8107310379	0	0	0
. LUCIE 1	335	81	030	0	070281	060381	8107310101	0	0	0
. LUCIE 1	335	81	032	0	072481	062481	8108030378	0	0	0
RRY 1	280	81	019	0	072181	070781	8107310489	0	0	0
RRY 1	280	81	023	0	072181	070881	8107310505	0	0	0
RRY 1	280	81	025	0	072181	071081	8107310510	0	0	0
RRY 2	281	81	037	0	071781	060881	8107280467	0	0	0
RRY 2	281	81	039	0	072381	062381	8108030137	0	0	0
RRY 2	281	81	040	0	072481	062681	8108030190	0	0	0
RRY 2	281	81	041	0	072481	062681	8108030195	0	0	0
RRY 2	281	81	043	0	071781	061781	8107280470	0	0	0
NKEE ROWE	29	81	013	0	071681	061681	8107310287	0	0	0
CN 1	295	81	030	0	072381	052481	8107300049	0	0	0

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REACTOR NAME	DOCKET	YR	LER	REV	LETTER DATE	EVENT DATE	DCS #	NON-SIGNIFICANT

NON-SIGNIFICANT LER'S-TOTAL	75.0
TOTAL NUMBER OF LER'S SCREENED	90.0
PERCENTAGE OF POTENTIALLY SIGNIFICANT LER'S	16.7%

LER ANALYSIS GOALS:

1. Develop a LER analysis technique from which we can meaningfully evaluate and characterize licensee performance, as shown by the LER's, and give recommendations and/or commendations as appropriate.

2. Develop a point system for LER's, based on "safety significance," from which plant comparisons and other conclusions can be made.

LER ANALYSIS TECHNIQUE:

Qualitative:

1. Summarize what happened with an "associated event group" list. The association may be anything meaningful in terms of cause or effect. The list should indicate the number of LER's in each group. (Many LER's may be associated with more than one group.)

2. Assign the most apparent root cause and summarize the LER's by this assignment.

Quantitative:

3. Assign points to each LER based on the potential for common-mode failure (degree of randomness), exposure time of the plant to degradation, and the magnitude of safety significance otherwise. Then, determine any or all of the following:

   a. Total points per unit or plant
   b. Total points per cause code
   c. Total points per associated group.

SUBSEQUENT LER EVALUATION:

The analysis shows the "types" of events, the "causes" and "significance." The evaluation can then proceed by looking for important event groups, for comparisons between plants based on total points, points by cause code, sheer numbers of events, etc. Comparisons should also be made between SALP periods for the same plant.

WHO DOES WHAT:

I would like OSS to do entire analysis and evaluation, then, present each plant evaluation to project chief and RI for comment. Eventually, the RI or even AEOD might do entire project. Experience in use should dictate further use and responsibilities.

POINT CALCULATION:

Initial Failure Type Value:

Random (rare, equipment only, design provides for)

value = 1

Non-random (common mode potential)

value = 3

Repetitive (means "non-randum" and frequent)

value = 10

Exposure Factor:

Plant exposure before and after discovery

Factor = 0.1 for $t \leq T$

Factor = 1.0 for $t > T$

Significance to Plant Safety Factor
(not including considerations above):

Loss of function

(Factor = 10)

Loss of redundancy and all items not otherwise addressed specifically

(Factor = 1.0)

Mitigating factors such as plant status during exposure, magnitude of failure (such as slight setpoint drift) minimize significance of events.

(Factor = 0.1)

"Refinements"

As I use this system it becomes necessary to modify the "rules" occasionally so that the results are meaningful.

Currently, I'm using the exposure time, T, equal one hour. However, for actual events, such as inadvertent release, this exposure factor is meaningless and I assume a "factor" of 1.0.

Because of large numbers of instrument failures, and because they are normally detected fairly quickly, I restrict the maximum "Initial Failure Type Value" to 3. This, I believe, results in a better weighting of events according to their importance to safety.

Right now I'm struggling with the "10" factor for "Loss of Function." The problem arises with actual loss, apparent loss, and possible loss. Obviously not all are equally significant. Seismic ~~fragility~~ hangars are a good example. I give seismic problems a factor of 1.0, even when they involve both safety trains, if the problems are not "gross."

Plant Examples Including "Associated Event Group" Summaries

D. C. Cook

NUMBERS OF LER's AND POINT TOTALS BY APPARENT ROOT CAUSE TYPE

(Apparent root cause is the "best guess" determination of root cause that can be made with available information in the LER and knowledge of similar events occurring. Corrective action descriptions are particularly helpful and used in determining root cause.)

Cause Type	Number of LER's				Points			
	SALP 1		SALP 2		SALP 1		SALP 2	
	U1	U2	U1	U2	U1	U2	U1	U2
A. Personal Error	8	13			74	77		
B. Design	21	22			49	88		
C. External Cause	0	0			0	0		
D. Defective Procedure	2	4			6	12		
E. Component Failure	10	9			12	9		
X. Other	7	13			63	64		
Total	48	61			205	251		

D.C. Cook 1 and 2 - LER Analysis

SALP Period 1, Total LER's: (48+61) 109

SALP Period 2, Total LER's: ( ) ____

ASSOCIATED EVENT GROUPS AND LER's PER GROUP

(Note: Some LER's are included in more than one group when they represent multiple problem areas.)

	SALP 1		SALP 2	
	Unit 1	Unit 2	Unit 1	Unit 2
1) Electrical breakers tripped by construction activity or for unknown reasons.	1	4		
2) Auxiliary feedwater system malfunctions.	1	6		
3) Reactor Containment Related Problems:				
a) Seismic qualification of air return fan.	1			
b) Glycol CIV failure to close.	2			
c) Other CIV failure to close.	2			
d) Containment leakage.	2			
e) Containment integrity violated, cause code A or D.	1			
f. CIV's not included in test procedure.	1	1		
g) Surveillance interval exceeded.	1			
h) Ice condenser door problems.	5			
i) Divider barrier seal cracked.	1	1		
4) Inadvertent release (minor).	1	2		
5) Fire barriers inoperable.	2			
6) Instrumentation:				
a) Containment atmospheric particulate and gas radiation monitor failures.	3	7		
b) F(z) monitoring problems.	4	3		
c) Control rod position indicator or control malfunction.	3			
d) Barton TX oil leak.	3			
e) Misc. instrument failure.	4	5		
f) Instrument drift.	3	6		
g) Misc. instrument problems compounded by personnel, procedural or other problems.		2		
h) Turbine stop valve proximity switch.		2		
i) Source range monitor problems.		3		

	SALP 1		SALP 2	
	Unit 1	Unit 2	Unit 1	Unit 2
7) Other.	7	8		
8) Seismic qualification.		2		
9) Valve problems, misc.		7		
10) Multiple outage or unavailability of redundant equipment:				
a) During modes 1-2		1		
b) During modes 3-6		3		

Zion 1 and 2 - LER ANALYSIS

SALP Period 1 LER Total: (65 + 34) 99

SALP Period 2 LER Total: (-)

RELIA

ASSOCIATED EVENT GROUPS AND LER'S PER GROUP

	SALP 1		SALP 2	
	Unit 1	Unit 2	Unit 1	Unit 2
1. Instrumentation problems (itemized below)	(37)	(14)	(13)	(5)
a) Setpoint drift (Fischer-Porter)	8	5		1
b) PZR level channel reading low	2	1	1	1
c) Condenser air ejector monitor failure	3			
d) Misc., cause unknown	3	1	3	1
e) Containment vent. part. rad. mon. failure	3	3		
f) Misc. instrument component failures	6		5	1
g) Physical damage by external cause	5			
h) Failure from environmental damage	4			
i) Misc. setpoint drift	3	3	2	
j) CRDM position indication problem		1		1
k) Other			2	
2. NSSS design related problems	(4)			
a) S-G level setpoint error	1			
b) FW nozzle cracking	1	1		
c) Neg. flux rate trip	1			
d) Charging pump protection (low flow)	1			
e) Boron dilution potential		1		

		Unit 1	Unit 2	Unit 1	Unit 2
3.	Emergency A.C. power system malfunctions or unavailability	5	3		2
4.	Surveillance missed or beyond required time interval.	4	1	5	
5.	Electrical equipment environmental qualification (Bull. 79-01)	2			
6.	Valve or damper failures	3	5		1
7.	Pump control problems	2			
8.	Personnel or procedural error resulting in T.S. violation.	3	6	3	
9.	Seismic capability degraded or lost.	9	4	2	
10.	Degradation of LOCA mitigation capability (not including seismic or A.C. power degradation)	14	12	10	2
11.	Degradation of non-LOCA event shutdown capability (not including purely seismic degradation LER's)	11	6	1	2
12.	Other	3			3
13.	Loss of offsite power		1		
14.	Apparent or possible air system problem (poor control air quality)		2	3	
15.	Boric acid tank boron concentration low		2		
16.	Steam pressure instrument sensing lines frozen.		1		
17.	Reactor trip breaker failure vital A.C. or D.C. control power and function		3		
18.	Standly instrument air failure			2	
19.	MSIV fail to close			1	
20	Fire sump rad monitor failure or failure to properly take grab samples during rad monitor O.O.S.			4	

Hypothetical "evaluation" that might be included in a SALP report based on the LER. "analysis" techniques described.

DRAFT 6/17/81 Wohld;ab

LER EVALUATION (ZION 1 & 2, SALP 1)

LER's during this SALP period represent a diverse array of problems involving both the plant facility and site personnel performance. Below is a summary of the LER's by the licensee's "proximate cause" assignment and by our interpretation of cause based on "apparent root cause."

(Apparent root cause is the "best guess" determination of root cause that can be made with available information in the LER and knowledge of similar events occurring. Corrective action descriptions are particularly helpful and used in determining root cause.)

Cause Type	Unit 1		Unit 2	
	Prox.	Root	Prox.	Root
A. Personal Error	8	12	3	3
B. Design	8	21	0	8
C. External Cause	0	0	1	1
D. Defective Procedure	1	1	3	7
E. Component Failure	40	12	23	9
X. Other	8	19	4	6
Total	65	65	34	34

The number of "proximate cause" component failures is high. Evaluation of root cause shows that many of the component failures are related to design problems and need to be addressed as such; the number of personnel errors are high and need to be reduced; and, the number of "Root Cause X" items is high and includes a significant number of items where better understanding of the represented problem areas is needed.

While 51 of the 99 LER's were instrumentation problems, and improvement is needed in this area, the more significant event groups were found in other LER's related to degradation of onsite A.C. power availability, LOCA mitigation and non-LOCA shutdown capability, and seismic protection.

There were eight LER's reporting diesel failures including apparently three occasions when two diesels were unavailable for emergency use. These failures coupled with the sensitivity of offsite power to foul weather (evidenced by LER 80-001/036-0) shows that the reliability of A. C. Power vital to plant safety does not approach that implied in the FSAR, particularly that indicated in FSAR Question 8.21. Additional corrective action is needed to increase emergency power reliability to that assumed in the plant safety analysis; response to Question 8.21 should be reconsidered to address practically obtainable reliability figures and address the station "blackout" concern as asked; and, NRC Region III will consider increased inspection effort in this area.

Other LER's, considered collectively, indicate that the licensees safety posture was not good during this SALP period. Examples, in addition to diesel problems, include: reactor scram breaker failure to open, feedwater nozzle cracking potential, inadequate centrifugal charging pump miniflow protection, seismic snubbers inoperable, MSIV failure to close, containment spray valve failure to open, steam generator pressure sensing lines frozen by cold weather, etc. (While all events did not occur simultane ously, the exposure to the plant to degradation represented by each LER and the type and numbers of events did result in concurrent safety system degradations.)

Actual
LER Evaluation
Submitted in
SALP 1
Report

access controls of personnel. All sites are still having minor software problems with the computer access control system but are correcting problems as they are identified. All sites are also taking steps to further limit the number of personnel authorized vital area access which is difficult to do because the sites consider their entire power block structure to be a vital area. Nothing short of compartmentalization of vital equipment will solve this concern. This matter is still under Commission consideration.

The licensee's performance in this area was rated as "average" as compared to the performance of other Region III licensees.

Construction - During the SALP period, 7 inspections were performed in this area. No items of noncompliance were identified. The licensee's performance in this area was rated as "average" as compared to the performance of other Region III licensees.

Summary - The noncompliance history, while relatively high in numbers, is not of major regulatory concern, and the licensee's overall regulatory performance is acceptable. However, licensee management needs to focus more attention on reduction of these numbers. This evaluation takes into account the additional regulatory requirements that were imposed on Zion by the NRC confirmatory order, as described in Paragraph C.

B. Number and Nature of Licensee Event Reports

Type of Events:	Unit 1	Unit 2
(A) Personnel Error	6	2
(B) Design	8	2
(C) External Cause	0	1
(D) Defective Procedure	1	1
(E) Component Failure	36	20
(X) Other	8	4

Licensee Event Reports Reviewed (Report Numbers):

Unit 1

LER No. 79-48 through 80-29

Unit 2

LER No. 79-36 through 80-22

Evaluation of LER's:

The licensee submitted 89 LER's during the SALP period. The majority (63%) of the LER's deal with component failure and instrument drift and prompt corrective action was taken. Approximately 9% of the LER's deal with personnel error, and this number is not considered excessive for a dual unit station. Of the 8 personnel errors, 1 involved noncompliance, the remaining 7 were of minimal consequences and resulted in no threat to safe operation.

C. Escalated Enforcement Actions

Civil Penalties

None

Orders

Confirmatory order February 29, 1980 regarding Zion Station and high contiguous population.

Immediate Action Letters

(1) May 23, 1980 Safeguards Inspection

(2) May 14, 1980 Health Physics Appraisal Program Inspection

D. Management Conference held during last Twelve Months

July 19, 1979 - Regulatory performance, security, revised inspection program, and other current topics.

E. Justification of Evaluation of Functional Areas Categorized as Requiring An Increase in Inspection Frequency/Scope

EMERGENCY PLANNING

Increased inspection scope is warranted in this area because of the recent changes in 10 CFR 50, Appendix E. This is applicable to the other Region III licensees.

HEALTH PHYSICS

Increased inspection scope is warranted in this area to review progress on significant HP appraisal findings.

F. Other Observations

Licensee Responsiveness

The licensee's strong point is considered to be their responsiveness to NRC regulatory requirements and concerns which have required additional resources to be directed to new areas.