NRC FORM 366
(7-77)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK: |___|___|___|___|___|___|1 (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

| 0 | 1 | | A | R | A | N | O | 2 |2 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 |3 | 4 | 1 | 1 | 1 | 1 |4 | ___ | ___ |5

LICENSEE CODE (9–14); LICENSE NUMBER (15–25); LICENSE TYPE (26–30); CAT (57–58)

| 0 | 1 | REPORT SOURCE | L |6 | 0 | 5 | 0 | 0 | 0 | 3 | 6 | 8 |7 | 0 | 9 | 2 | 6 | 8 | 3 |8 | 0 | 1 | 1 | 9 | 8 | 4 |9

DOCKET NUMBER (61–68); EVENT DATE (69–74); REPORT DATE (75–80)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

| 0 | 2 | On 9/26/83, with the unit at 100% power, it was determined that Battery 2D11 had failed its quarterly surveil-
| 0 | 3 | lance test, rendering it technically inoperable. The quarterly test was started on 9/23/83. Initial battery
| 0 | 4 | readings had indicated that 5 cells were out of specification in that they deviated by more than 0.05 volts
| 0 | 5 | from initial acceptance test data, the worst being 0.08 volts. The as found voltage deviation was not recog-
| 0 | 6 | nized as a limit specified in Technical Specification (T.S.) 4.8.2.3.2.b.1; thus, the action requirements of
| 0 | 7 | Specification 3.8.2.3 (b) were not taken within the time allowed by the Limiting Condition for Operation (LCO);
| 0 | 8 | therefore, General Specification 3.0.3 became applicable. The reactor was shut down and the unit was brought

	SYSTEM CODE	CAUSE CODE	CAUSE SUBCODE	COMPONENT CODE	COMP SUBCODE	VALVE SUBCODE
0 9	E C 11	A 12	X 13	B A T T R Y 14	Z 15	Z 16

LER/RO REPORT NUMBER 17	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO
	8 3	---	0 4 4	/	0 1	X	---	1

ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT	SHUTDOWN METHOD	HOURS	ATTACHMENT SUBMITTED	NPRD-4 FORM SUB	PRIME COMP. SUPPLIER	COMPONENT MANUFACTURER
X 18	X 19	A 20	A 21	0 2 1 6 22	Y 23	N 24	A 25	C 1 7 3 26

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

| 1 | 0 | The cause of the battery degradation was determined to be normal aging coupled with the fact that previous
| 1 | 1 | equalizing charges were not sufficient in duration. An investigation was conducted with the Maintenance and
| 1 | 2 | Operations personnel involved to determine why the voltage deviation was not recognized as a Technical Specifi-
| 1 | 3 | cation (T.S.) limit, thereby causing the LCO to be exceeded. It was determined that the basic cause was an
| 1 | 4 | inadequate exchange of information between the shift supervisor and the maintenance technician. Contributing

	FACILITY STATUS	% POWER	OTHER STATUS	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION
1 5	E 28	1 0 0 29	NA 30	B 31	Routine Surveillance 32

	ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY	LOCATION OF RELEASE
1 6	Z 33	Z 34	NA 35	NA 36

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION
1 7	0 0 0 37	Z 38	NA 39

PERSONNEL INJURIES

	NUMBER	DESCRIPTION
1 8	0 0 0 40	NA 41

LOSS OF OR DAMAGE TO FACILITY

	TYPE	DESCRIPTION
1 9	Z 42	NA 43

8402010147 840119
PDR ADOCK 05000368
S PDR

PUBLICITY

	ISSUED	DESCRIPTION
2 0	N 44	NA 45

NRC USE ONLY

NAME OF PREPARER: Dan Moeggenberg

PHONE: (501) 964-3100

LER No. 50-368/83-044/01X-1

Occurrence Date: 09/26/83

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (Continued)

to cold shutdown within the time requirements of General Specification 3.0.3, and subsequently entered the refueling outage. Upon evaluation of the significance of the battery cell voltage deviation, it was determined that the battery would have performed its safety function. In addition, redundant Battery 2D12 was available for service. This event is reportable per T.S. 6.9.1.8.b. Other LER's regarding battery cells were (50-368) 82-013, 82-016 and 82-020.

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (Continued)

factors include:

1) The maintenance technicians did not recognize the deviation as a T.S. limit.
2) The surveillance procedure did not identify the limit as a T.S. limit.
3) The procedure did not specify the information to be conveyed to the shift supervisor.
4) Prior T.S. training given to the maintenance technicians regarding battery surveillance was not effective.
5) The electrical maintenance supervisor, who was first notified of the deviation by the maintenance technicians, was unfamiliar with the surveillance procedure. (Note: The regular electrical maintenance supervisor was not on site.)

After it was recognized that the T.S. limit and LCO were exceeded, the unit was brought to cold shutdown as required by General Specification 3.0.3. The battery was placed on equalizing charge for an extended time. Subsequent battery readings indicated certain cells were varying in and out of specification. As a result of an engineering evaluation of battery performance, 4 cells were replaced to provide additional assurance that the specification limit of 0.05 voltage deviation from initial acceptance data would not be exceeded.

Regarding the failure to comply with T.S. 3.8.2.3 (b), the following corrective actions were taken:

1) As of 10/1/83, all limits in surveillance procedures in the plant's Master Test Control List are being treated as though they are T.S. limits. If a limit is exceeded, it is to be formally reported via a Report of Abnormal Condition to allow prompt operability assessment. This will remain in effect until such time as the surveillance procedures are reviewed and determined not to contain T.S. limits, or the procedures are revised to adequately inform the user of T.S. limits and instruct the user of his immediate responsibilities. The review of procedures will be documented and subsequently reviewed by the Plant Safety Committee. Revised procedures will be reviewed by the Plant Safety Committee. Management and supervision were required to review the above requirements for reporting out of specification conditions as well as individual responsibilities with their workers before they have performed a surveillance after 9/30/83.

2) Long term corrective actions will contain the following elements:

   a) Surveillance procedures will be reviewed and revised to assure that the method of collecting data and comparing it to limits is standardized, that the procedure steps flow in a logical manner, and that adequate QC requirements are built into the procedure.

   b) Training for all departments on technical specifications which apply to their discipline will be conducted. The SRO training program will be reviewed in the area of technical specifications to ensure it is thorough enough in light of this problem.

   c) An investigation is being conducted of the apparent breakdown in administrative controls which resulted in the occurrence of this event. After the investigation is concluded, additional corrective actions will be taken in this area.

Past battery surveillance on 2D11 and 2D12 were reviewed to identify other potential violations of the technical specifications surveillance test criteria. The tests reviewed were those performed from August 1978 through September 1983. The following summary is a tabulation of the findings from a review of quarterly tests performed on Battery 2D11 from August 1978 through September 1983:

8/11/78, as found and as left, 35 cells voltage decreased more than 0.05 volts from initial acceptance test data. No corrective action was taken.

11/17/78, as found and as left, 2 cells voltage decreased more than 0.05 volts from initial acceptance tests data. No corrective action was taken.

3/10/79, as found and as left, 22 cells voltage decreased by more than 0.05 volts from initial acceptance test data. No corrective action was taken.

9/14/79, as found and as left, 35 cells voltage decreased more than 0.05 volts from initial acceptance test data; 41 cells specific gravity decreased more than 0.010 from the previous quarter. No corrective action was taken.

12/10/79, as found and as left, 2 cells voltage decreased more than 0.05 volts from initial acceptance test data. No corrective action was taken.

3/15/80, data could not be located on 26 cells. All other cells were within specified limits.

5/28/80, as found and as left, 1 cell voltage decreased by more than 0.05 volts from initial acceptance test data; 17 cells specific gravity less than 1.200; 23 cells specific gravity decreased by more than 0.010 from previous quarter. Quarterly comparison of specific gravity was not made on 26 cells due to missing data. No corrective action was taken.

2/25/81, as found and as left, 1 cell specific gravity decreased more than 0.010 from the previous quarter. No corrective action was taken.

6/10/81, as found and as left, 59 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

7/6/81, as found and as left, 2 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

12/22/81, as found and as left, 2 cells voltage decreased by more than 0.05 volts from initial acceptance test data. No corrective action was taken.

10/01/82, the quarterly surveillance test data recorded on 10/1/82 is the data taken after the 60 month discharge and equalize cycle. As such, the usefulness of comparing specific gravities to the 6/28/28 data is questionable. Data was taken, however, prior to the 18-month service test and the 60 month discharge test on 9/18/82. From this data, one cell was found to exhibit a voltage decrease of more than 0.05 volts from the initial acceptance test data. Subsequent to the 60 month test and equalize, all cells within specified limits on 10/01/82.

12/30/82, as found, 14 cells specific gravity was less than 1.200; 1 cell voltage decreased by more than 0.05 volts from initial acceptance test data; 46 cells specific gravity decreased by more than 0.010 from the previous quarter using the as left data subsequent to the first of three equalize charges on 9/18/82. The battery was equalized on 12/31/82; however, as left data indicates specific gravity value of one cell had decreased by more than 0.010 from the data of 9/18/82.

3/23/83, as found, 4 cells voltage decreased by more than 0.05 volts from initial acceptance test data. An equalizing charge was placed on the battery; however, the as left data indicates the voltage of cell was still greater than 0.05 volts from initial acceptance test data.

6/22/83, as found, 1 cell voltage had decreased by more than 0.05 volts from initial acceptance test data. After an equalizing charge was placed on the battery, all cells were within specified limits.

9/22/83, as found, 5 cells voltage had decreased by more than 0.05 volts from initial acceptance test data. The battery was equalized, after which 6 cells voltage had decreased by more than 0.05 volts.

The following summary is a tabulation of the findings from a review of quarterly tests performed on battery 2D12 from August 1978 through September 1983.

8/11/78, this was the first test reviewed and as such specific gravity comparison to a previous quarter was not calculated. All cells were within limits.

12/1/78, as found and as left, 2 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

3/11/79, as found and as left, 26 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

6/18/79, all cells were within specified limits; however, the total maximum combined interval time for three consecutive surveillance intervals above was 3.38 times the specified interval.

9/14/79, as found and as left, 15 cells specific gravity was less than 1.200; 24 cells specific gravity decreased by more than 0.010 from previous quarter. No corrective action was taken.

12/10/79, as found and as left, 2 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

5/28/80, as found and as left, 3 cells specific gravity was less than 1.200; 16 cells specific gravity decreased by more than 0.010 from the previous quarter. No correct action was taken.

12/8/80, as found, 30 cells specific gravity decreased by more than 0.010 from the previous quarter. An equalizing charge was placed on the battery. Data taken immediately after equalization indicated that all cells were within specified limits.

6/12/81, as found and as left, 3 cells specific gravity decreased by more than 0.010 from the previous quarter. No corrective action was taken.

1/11/82, the test copy of the test for this surveillance interval could not be located.

4/26/82, as found, all cells were within specified limits. The battery was equalized, however, and as left, 1 cell specific gravity had decreased by more than 0.010 from the 10/22/81 quarterly data.

7/23/82, as found, 2 cells specific gravity decreased by more than 0.010 from the previous quarter. The battery was placed on equalizing charge. Data taken immediately after the equalizing charge was terminated indicated all cells were within specified limits.

7/26/83, as found, 2 cells specific gravity had decreased by more than 0.020 from the previous quarter. The battery was placed on equalizing charge. Subsequent readings indicated all cells were within specified limits.

The following summary is a tabulation of the findings of a review of 18-month tests performed on Batteries 2D11 and 2D12 from August 1978 through September 1983.

2D11

9/21/82, recorded data indicates a resistance of 0.02 ohms in the connection between Cells 24-25. The data sheet did not indicate whether the data was as found or as left; however, the procedure clearly states the corrective action will be taken if resistance is greater than 0.01 ohm.

Review of the 60-month surveillance tests performed on 2D11 (10/1/82) and 2D12 (9/28/82) indicated compliance with Technical Specifications. The seven-day surveillance tests results were not reviewed.

ARKANSAS POWER & LIGHT COMPANY
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January 19, 1984

2CAN018408

Mr. J. E. Gagliardo, Director
Division of Resident Reactor Projects
and Engineering Programs
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Licensee Event Report
No. 83-044/01X-1

Gentlemen:

In accordance with Arkansas Nuclear One - Unit 2 Technical Specification 6.9.1.8.b, attached is the subject report concerning degradation of Battery 2D11. This is a revision to a previous submittal dated October 10, 1983.

Very truly yours,

John R. Marshall
Manager, Licensing

JRM:RJS:sl

Attachment

cc: Mr. Richard C. DeYoung
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. Norman M. Haller, Director
Office of Management & Program Analysis
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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