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NE-ID--BEA-ATR-2009-0022 FINAL

Occurrence Report
After 2003 Redesign

Advanced Test Reactor

(Name of Facility)

Category "A" Reactors

(Facility Function)

Idaho National Laboratory — Battelle Energy Alliance, LLC

(Site) (Contractor)

Name: SCHUEBERT, EDMOND J
Title: ATR Operations Facility Manager **Telephone No.:** (208) 533-4246

(Facility Manager/Designee)

Name: OWENS, MARJORIE A
Title: ATR OPERATIONS FACILITY ADMINISTRATI **Telephone No.:** (208) 533-4563

(Originator/Transmitter)

Name: E. Bruce Criswell **Date:** 09/30/2009

(Authorized Classifier (AC))

1. Occurrence Report Number: NE-ID--BEA-ATR-2009-0022

Loss of Diesel Bus Power to Affected Experiment Loop Operating Pumps Results in Automatic Shutdown of the Advanced Test Reactor (ATR)

2. Report Type and Date: FINAL

	Date	Time
Notification:	09/30/2009	12:02 (ETZ)
Initial Update:	11/12/2009	18:59 (ETZ)
Latest Update:	11/12/2009	19:02 (ETZ)
Final:	11/30/2009	13:17 (ETZ)

3. Significance Category: 2

4. Division or Project: ATR Programs

5. Secretarial Office: NE - Nuclear Energy, Science and Technology

6. System, Bldg., or Equipment: Advanced Test Reactor (ATR)

7. UCNI?: No

8. Plant Area: Diesel

9. Date and Time Discovered: 09/29/2009 08:33 (MTZ)

10. Date and Time Categorized: 09/29/2009 12:40 (MTZ)

11. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

12. Other Notifications:

Date	Time	Person Notified	Organization
09/29/2009	12:47 (MTZ)	R. Denning	DOE-ID

13. Subject or Title of Occurrence:

Loss of Diesel Bus Power to Affected Experiment Loop Operating Pumps Results in Automatic Shutdown of the Advanced Test Reactor (ATR)

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14. Reporting Criteria:

4B(2) - Actuation of a Safety Class Structure, System, or Component (SSC), or its alarms, resulting from an actual unsafe condition. Spurious alarms (e.g., due to electronic noise, radon/thoron decay) should not be reported.

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15. Description of Occurrence:

On September 29, 2009, at approximately 0833, breaker B-1 on Diesel Bus 670-E-9 tripped open on a ground fault indication and resulted in an automatic scram (shutdown) of the ATR. The breaker trip resulted in a loss of power to the diesel generator powered pumps in three of the five experiment and actuation of the associated pump breaker under-voltage scram signals. The three affected experiment loops (1D-N, 2E-NW, and 1C-W) each had a combination of diesel and commercial powered pumps operating to provide flow. Commercial power was uninterrupted and forced flow was maintained in all affected loops. No reactor systems were affected. Operating cycle experiments were not adversely affected.

Further investigation revealed a grounded motor stator for the 1C-W diesel powered pump motor M-3. The associated diesel powered loop pump individual breakers located on Panel 670-E-21 between

breaker B-1 and the operating loop pump motors (e.g., 1C-W pump M-3) do not have individual breaker ground fault protection selective tripping setpoints established. Once the cause is fully determined and corrected, the reactor can be restarted to continue the current operating cycle.

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16. Is Subcontractor Involved? No

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17. Operating Conditions of Facility at Time of Occurrence:

The ATR was operating at nominal full power for Cycle 145A-1.

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18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

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19. Immediate Actions Taken and Results:

Appropriate levels of BEA management and DOE-ID were notified of this event.

Established procedures for a reactor scram were performed and the reactor was verified to be in safe shutdown condition.

Investigation into the cause of the ground fault trip of breaker B-1 on Diesel Bus 670-E-9 was initiated which revealed a grounded motor stator for the 1C-W diesel powered pump motor M-3.

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20. ISM:

6) N/A (Not applicable to ISM Core Functions as determined by management review.)

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21. Cause Code(s):

A2B6C01 - Equipment/ material problem; Defective, Failed or Contaminated; Defective or failed part

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22. Description of Cause:

The cause of this event was determined to be A2B6C01 - Defective or failed part. A grounded motor stator for the 1C-W diesel powered pump motor M-3 caused a ground fault trip of breaker B-1 on Diesel Bus 670-E-9, resulting in a reactor shutdown. As this pump is in a high radiation area, it is necessary for the reactor to be shut down in order to adequately investigate/repair/replace the motor. Investigation will occur during Cycle 145B-1 outage and motor repair/replacement will occur in a future outage as priorities and resources allow. (See corrective action #1)

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23. Evaluation (by Facility Manager/Designee):

The only impact as a result of this event is programmatic. This motor is Sponsor-owned equipment.

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24. Is Further Evaluation Required?: No

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25. Corrective Actions
Local Tracking System Name: ICAMS

1.

Repair/replace 1C-W M-3 diesel powered pump motor.	
Target Completion Date: 12/29/2010	**Tracking ID:** ICARE 45175

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26. Lessons Learned:

There are no lessons learned as this event is a result of equipment failure.

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27. Similar Occurrence Report Numbers:

None

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28. User-defined Field #1:

GB10

29. User-defined Field #2:

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30. HQ Keyword(s):

01I--Inadequate Conduct of Operations - Safety System Actuation/Evacuation
07C--Electrical Systems - Power Outage
07E--Electrical Systems - Electrical Equipment Failure
12E--EH Categories - Equipment Degradation/Failure
14L--Quality Assurance - No QA Deficiency

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31. HQ Summary:

On September 29, 2009, an automatic scram (shutdown) of the Advanced Test Reactor (ATR) occurred when circuit breaker B-1 on Diesel Bus 670-E-9 tripped open on a ground fault indication. The circuit breaker trip resulted in a loss of power to the diesel generator powered pumps in three of the five experiment loops and actuation of the associated pump circuit breaker under-voltage scram signals. The three affected experiment loops (1D-N, 2E-NW, and 1C-W) each had a combination of diesel and commercial powered pumps operating to provide flow. Commercial power was uninterrupted and forced flow was maintained in all affected loops. Investigation into the cause of the ground fault trip of circuit breaker B-1 revealed a grounded motor stator for the 1C-W diesel powered pump motor M-3. The

reactor is in a safe condition and once the cause is fully determined and corrected, the reactor can be restarted to continue the current operating cycle.

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32. DOE Facility Representative Input:

report is clearly written and accurrate

Entered by: DENNING, RICHARD W Date: 11/30/2009

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33. DOE Program Manager Input:

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34. Approvals:

Approved by: SCHUEBERT, EDMOND J, Facility Manager/Designee
Date: 11/12/2009
Telephone No.: (208) 533-4246

Approved by: DENNING, RICHARD W, Facility Representative/Designee
Date: 11/30/2009
Telephone No.: (208) 526-5015