



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 30, 1991

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: LaSalle County Station Unit 2
Division 2, 125V Battery Replacement
NRC Docket No. 50-374

- References: (a) M.H. Richter letter to T.E. Murley
dated April 17, 1989.
- (b) W.E. Morgan letter to U.S. NRC
dated October 17, 1990.
- (c) J.B. Hickman letter to T.J. Kovach
dated February 4, 1991.

Dear Sir:

The attachments to this letter are provided in support of a proposed temporary battery supply arrangement that is required to support the replacement of the LaSalle County Station Unit 2 Division 2, 125 volt DC Batteries. A similar arrangement was proposed by Commonwealth Edison (CECo) for Unit 1 in Reference (b) and approved by the NRC staff in Reference (c). The battery replacement modification is currently scheduled for the January 1992 Unit 2 Refueling Outage.

This temporary arrangement will not be implemented until your staff has reviewed and concurred with this submittal. The following attachments provide a discussion of the battery replacement, the proposed temporary arrangement and a safety evaluation. It is requested that your approval of the proposed battery arrangement be completed by December 31, 1991 in order to support the installation of the batteries during the L2R04 refueling outage.

Please direct any questions you may have to this office.

Very truly yours,

Peter L. Piet
Nuclear Licensing Administrator

Attachments

1. Discussion of the Division 2 Battery Replacement
2. Safety Evaluation of the LaSalle Unit 2 Division 2 Battery Replacement
3. Installation Sequence for Unit 2

cc: A.B. Davis - Regional Administrator, RIII
Senior Resident Inspector - LSCS
B.L. Siegel - Project Manager, NRR
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ATTACHMENT 1

Unit 2 Temporary Battery Supply For The LSCS Division 2 Battery Replacement

LaSalle County Station's DC supply configuration currently is comprised of three 125 volt batteries per unit, one for each Division. Divisions 1 and 2 supply a variety of safety loads while Division 3 supplies only the HPCS System. In addition to the three batteries per unit, the Division 2 battery of the other unit is required to supply power for the following common systems: Control Room Ventilation, Standby Gas Treatment and Primary Containment Hydrogen Recombiners (Technical Specification 3.8.2.3).

LaSalle Station is currently replacing the Division 1 and 2 batteries in both units to accommodate additional station load requirements. In addition, as a response to the NRC Station Blackout Rule, LaSalle Station committed (Reference (a)) to replace the Division 2 batteries during each unit's next refueling outage. (Unit 1, February 1991, and Unit 2, January 1992). The Division 1 batteries were replaced during November 1989 for Unit 1 and April 1990 for Unit 2.

The replacement of the Division 1 batteries during the unit refueling outages did not present problems with the operation of the other unit. The Division 1 batteries were not needed for the other units operation and were not constrained by any Technical Specifications. Additionally, lessons learned were realized with no impact on the operating unit.

The Division 2 replacement batteries were successfully installed for Unit 1 during L1R04. There were no unanticipated problems associated with the installation of the batteries.

The replacement of the Division 2 batteries requires that alternative DC power be supplied while the battery is being replaced and tested. This action is required to avoid a shut down of both units because of Technical Specification LCO requirements. Technical Specification 3/4.8.2.3 requires that the 125 volt Division 2 Battery of the shutdown unit be available within seven days. Since installation and testing will take longer than the LCO requirement, a temporary arrangement is being proposed that involves the use of the 250 volt battery for the unit which is having its battery replaced. The 250 volt battery will be center tapped and temporary cables will be used from the 250 volt battery to the 125 volt Division 2 bus. Eight 500MCM cables, four positive and four negative, approximately 200 feet long each will be used (See the attached figure for the physical arrangement). Access in the cable run location will be controlled to minimize any potential for faults to occur in the cable which could render the Division 2 DC system inoperable. This arrangement provides for the needs of the other unit and will allow the DC system to remain operable. This temporary arrangement will be limited to 6 weeks.

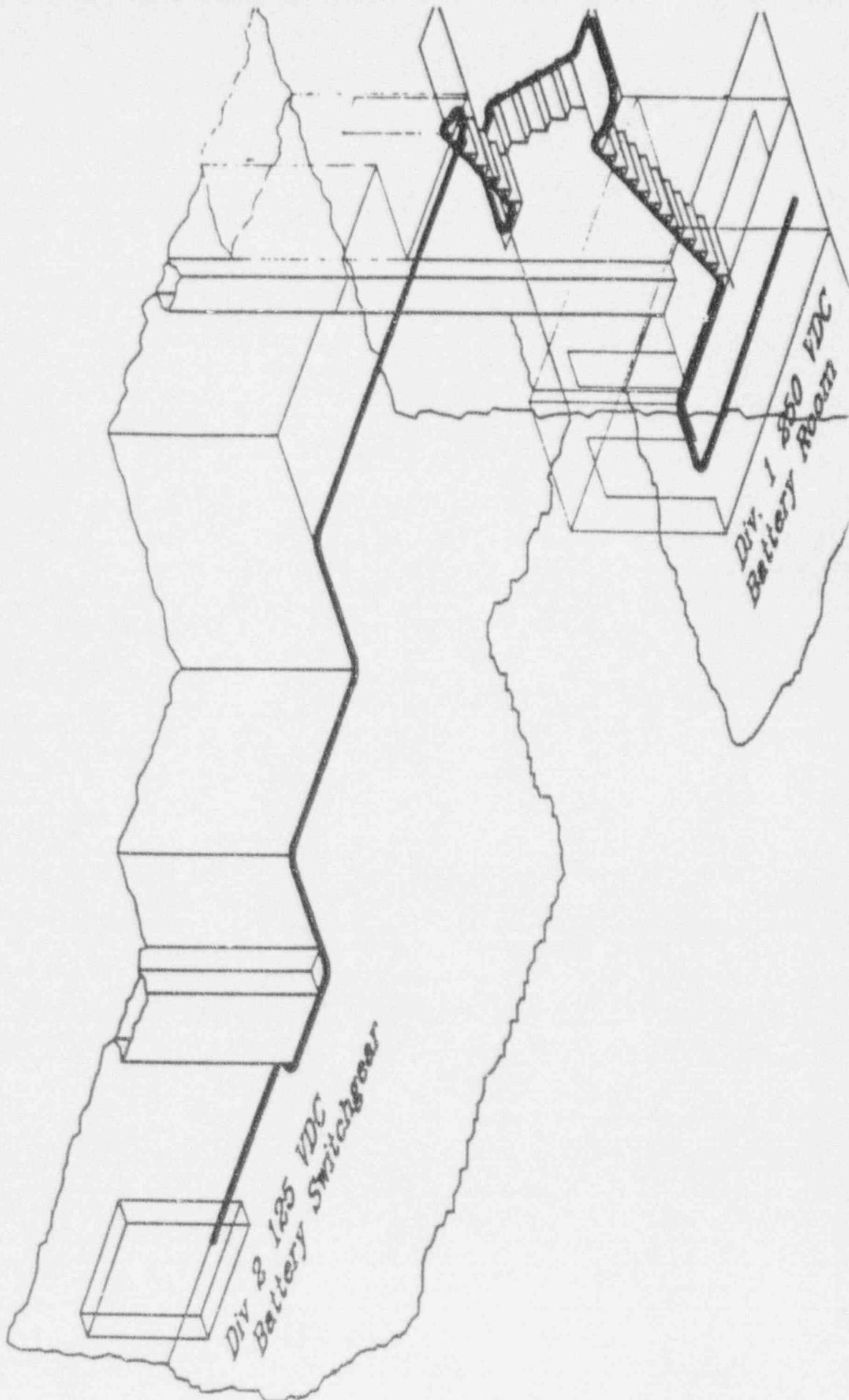
ATTACHMENT 1 (continued)

A safety evaluation performed in accordance with 10 CFR 50.59 determined that the temporary configuration slightly increased the probability of a malfunction of the Division 2 DC system for the other unit during a seismic event. The cabling connecting the temporary battery and the DC bus will not be analyzed for a seismic event. Although LaSalle County is not in a seismically active area of the country (Illinois), contingency and compensatory measures as described in the Safety Evaluation (Attachment 2) will be implemented to provide reasonable assurance that the battery system (including the non-seismic cables) will be operable during the limited replacement period.

The replacement of the Unit 1 Division 2 batteries was completed during L1R04. A similar temporary battery configuration was used during L1R04 (Reference (b)). The temporary configuration proposed for L2R04 utilizes a larger capacity battery (1/2 the 250 volt battery) than was used for the same purposes during L1R04. The larger capacity battery has been evaluated for short circuits and other potentially adverse effects and found to be acceptable. The Unit 2 replacement is scheduled for January 1992 (See Attachment 3 for the Installation Sequence).

LASALLE UNIT 1 CONFIGURATION

(UNIT 2 IS MIRROR IMAGE)



ATTACHMENT 2

Safety Evaluation of the LaSalle Unit 2 Division 2 Battery Replacement

Is the probability of an occurrence or the consequences of an accident, or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report increased?

Non-Seismic cable - The cable run from the 250 Volt center tapped battery to the 125 Volt Division 2 bus will not be seismically supported. This configuration does not meet the seismic requirements of Section 3.1.2 of the UFSAR.

Mitigating Circumstances

- ° Temporary Configuration -
 - The center tapped 250 Volt battery is Class 1E and seismically qualified.
 - A majority of the cable will run on the floor. This configuration is not likely to fail in a seismic event since the structure and equipment in the switchgear rooms are seismically installed. CABLE TRAYS?
 - The connections to the cells and bus will not fail since they are similar to the existing connections and will not add additional weight.
 - All material used in this temporary alteration will be safety related.
 - The doors will be blocked open or removed.
 - The run will be roped off and the stairwell closed to normal traffic.
 - A surveillance of the cable will be done once per shift to inspect for cable damage.
 - Bus Voltage will be read in the control room once per shift. Low voltage will alarm in the control room.

ATTACHMENT 2 (continued)

- Charger - The existing Division 2 battery charger will be used as the preferred source of 125 Volt Division 2 DC power. The battery is needed in the event of charger failure or loss of off-site power. The charger is a permanent class 1E charger and has the capacity to handle the normal loads. Note that the charger does not meet the FSAR requirement of having the current capacity to supply both the normal loads and the current to a fully discharged battery. However, this requirement is not applicable since the battery will not be discharged. If the battery becomes discharged, the system will be declared inoperable and the normal LCO applied.
- The reactor will be defueled; hence, ECCS (or Division 1) is not required.
- Redundancy - Providing DC power to the defueled unit's VG, VC, and HG systems will ensure redundancy with the running unit's equivalent systems. The running unit's VG, VC, and HG systems will be operable prior to starting this temporary alteration. No planned OOS of these systems will be scheduled during this temporary alteration.

The redundancy between Division 1 and Division 2 of the defueled unit is not required since Division 1 is not required.

Fire barrier compromised - Two Tech Spec fire doors¹ will be blocked open or removed. One door is between the Division 1 switchgear room and a stairwell, at elevation 710, and the other door is between the Division 2 switchgear room and the same stairwell, at elevation 731 (See Figure 1). The configuration does not meet the fire protection requirements of Section 9.5.1 of the UFSAR. LSCS is designed such that a fire in one electrical division will not adversely effect the other division. Since fire barriers between Divisions are temporarily removed, the consequences of a fire is increased. However, the following measures will be taken to mitigate the consequences of a fire in one Division affecting another Division:

- Tech Spec 3.7.6 will be followed.
- A continuous fire watch at both doors will be established.
- The combustibles in the path created by the temporary run will be limited. Note that the combustible load of the cable is low.
- The reactor will be defueled; hence ECCS (Div 1) is not required.

1- The affected doors are 254 and 269 on Unit 2. Doors between Units 1 and 2 are not required to be open simultaneously due to this configuration.

ATTACHMENT 2 (continued)

Is the possibility for an accident, or malfunction of a different type than previously evaluated in the Final Safety Analysis Report created?

The configuration of the 125 Volt Division 2 battery systems remains the same. Failure of the temporary cables is identical to failure of the normal cables. The failure would have identical effects as the single failure of the Division 2 battery as described in Section 8.3.2.1.1 of the UFSAR.

Electrical Separation - One half of the 250 Volt battery which is located in the Division 1 switch gear, will power the Division 2 bus; however, the battery will be completely electrically isolated from Division 1 and will be treated as Division 2. Cable separation is maintained by the temporary cable configuration.

Physical Separation - Although the Division 2 circuit will be located in the Division 1 switchgear room, the proposed cable will not run near (within three feet horizontal and five feet vertical) Division 1 electrical equipment. Cable separation is maintained by the temporary cable configuration. The run of cable in the Division 1 switch gear room is minimized to approximately 10 feet. The only equipment near the run is a switchgear heat removal HVAC duct. Hence adverse interaction in an event such as a fire is minimized. Division 2 remains completely physically separate from the other Unit's Division 1 and Division 2 systems.

Since the temporary alteration does not violate electrical or physical separation between two electrical divisions, no modes of failure are created.

Is the margin of safety as defined in the basis of any Technical Specification reduced?

- Capacity - One half of the 250 Volt battery will be isolated and connected to the Div 2 main bus, 1(2)DC15E. The battery will supply no other loads. The capacity of one half of the 250 Volt battery has been evaluated and found to be acceptable using ELMS.*
- Voltage - The battery terminal voltage will remain greater than or equal to 128 Volts on float charge.
 - The cable voltage drop was evaluated using the current ELMS loads and found to be acceptable. The bus voltage will remain above 105 Volts for the required four hours when supplying the actual emergency loads.

* Electrical loads monitoring system-data base for tracking electrical loads and inter connections.

ATTACHMENT 2 (continued)

- Electrolyte level, Float Voltage and Specific gravity requirements in the Tech Specs for the Division 2 battery apply and will be adhered to.
- Tech Spec surveillance of the 125 Volt Division 2 battery will be applied.
- Temperature will be maintained at or above 60°F.

The above will ensure that the battery will meet the Tech Spec basis and maintain the ability to supply emergency loads.

Other associated commitments

- If the Division 2 125 Volt DC system including the temporary configuration is degraded and cannot perform its intended function, the system will be declared inoperable and the normal LCOs would apply. Otherwise the system will be treated as operable.
- BWR Systems of the Nuclear Engineering Department will detail the technical attributes of this temporary alteration in order to ensure that the configuration meets the intent of this safety evaluation.
- Work will be done around the clock, (three shifts, seven days a week) to minimize the length of time in this configuration.

ATTACHMENT 3

Installation Sequence for Unit 2

- Declare 250 Volt battery inoperable.
- Cross-tie Units 1 & 2 125V Div. 2 (Start 3 day time clock).
- Lift 125 Volt Div. 2 battery main power leads under modification M01-2-88-003.
- Connect 1/2 of the 250 Volt battery to the 125 Volt bus under the temporary alteration.
- Remove cross-tie under the temporary alteration (End time clock. Div. 2 is conditionally operable).
- Replace the 125 Volt Div. 2 battery, except for landing the main feeds, under modification M01-2-88-003.
- Install temporary feed from the new charger to the new 125V battery.
- Test & charge 125 Volt Div. 2 battery, under modification M01-2-88-003.
- Declare Div. 2 inoperable (Start 7 day time clock).
- Cross-tie Units 1 & 2 125V Div. 2 (Start 3 day time clock).
- Remove the 250 Volt battery center tap.
- Replace and test Div. 2 charger under mod M01-2-88-002.
- Land the 125 Volt Div. 2 battery main feeds.
- Return 125 Volt Div. 2 battery to service.
- Return 125 Volt DC Div. 2 to service.
- Remove cross-tie Units 1 & 2 125V Div. 2 (End 3 day time clock)
- Complete the service test and recharge the 250 Volt Battery.
- Declare 250 Volt battery operable.