



**Commonwealth Edison**

One First National Plaza, Chicago, Illinois  
Address Reply to: Post Office Box 767  
Chicago, Illinois 60690

October 6, 1982

Mr. A. Schwencer, Chief  
Licensing Branch #2  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: LaSalle County Station, Units 1 and 2  
Diesel Generator Prelube Oil Pump Modification  
Operating License Condition 2.C.(21).(b)  
NRC Docket Nos. 50-373 and 50-374

- References (a): LaSalle County Station, Unit 1 Facility  
Operating License No. NPF-11.
- (b): SER Section 9.6.3.4.
- (c): October 8, 1981, letter from Mr. C.E. Sargent  
to Mr. A. Schwencer of the NRC on proposed  
changes to the LaSalle Technical Specification.
- (d): November 18, 1981, letter from Mr. C.E. Sargent  
to Mr. A. Schwencer concerning the diesel  
generator prelube oil pump modification.

Dear Mr. Schwencer:

Reference (a), Condition 2.C.(21).(b) requires that: "A prelube pump, powered from a reliable direct current power supply, be installed in the system to operate in parallel with the engine-driven lube oil pump, or an alternative acceptable to the NRC shall be installed to preclude dry-starting of the diesel-engine."

Background

In our letters of October 8, and November 18, 1981, and via several telecons with John Knox, Robert Giardina, and A. Bournia, we had proposed an alternate solution that is recommended by EMD, the diesel engine manufacturer, and Stewart and Stevenson, the equipment supplier, for diesel engines subject to emergency starts. Our proposal was to modify the lubrication system per EMD Maintenance Instruction 9644. This EMD modification will provide continuous lubrication for the moving parts in the lower part of the engine and maintain adequate oil level in the oil coolers and filters irrespective of oil viscosity. In our telecons with the NRC they had agreed that the EMD modification would correct the

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lubrication problem for the lower engine parts but not for the upper engine parts such as the valve rocker arm assemblies and camshaft. Our position was that prelubrication of the upper engine parts will not improve engine reliability because the EMD modification will decrease the time that upper deck lubrication is achieved after a diesel start and, therefore, prevent any damage to these parts. Also, EMD and Stewart and Stevenson had verbally advised against installing a prelube oil pump. Reference (c) and (d) describe the EMD modification and list our reasons for not adding the prelube pump.

#### Additional Information

Since our last letter to the NRC on this subject, EMD and Stewart and Stevenson have confirmed in writing their position on the prelube pump modification. In a letter dated January 4, 1982, EMD's District Engineer in Power Product Service, Mr. M.J. Fleckenstein, informed Mr. Robert Giardina that the 48-hour prelube requirement does not apply to engines modified per EMD MI 9644. In a letter dated May 5, 1982, Stewart and Stevenson recommended against the installation of a prelube pump because it is not necessary and may degrade the reliability of the diesel. Their specific comments on the EMD and prelube pump modifications are as follows:

1. A DC driven prelube pump in parallel with the engine driven pump is not necessary because the EMD MI 9644 modification maintains adequate lube oil levels within the engine to achieve upper deck lubrication after very few revolutions of the engine. Because bearing design and lube requirements are a function of load and speed, sufficient residual oil will be present between normal shutdown periods for startup of the engine without damage to upper engine parts.
2. MI 9644 maintains oil levels in the engine at elevations which keep the lower oil gallery and passages flooded, thus preventing the entrance of air. Overflow lines, properly elevated and sized, assure that lube level is maintained below the upper engine components thus preventing hydraulic oil lock.
3. MI 9644 modification was developed to increase diesel engine reliability and it does not adversely effect the operation of the engine.
4. Addition of a prelube pump in addition to the MI 9644 modification which was developed and tested by EMD is not recommended because it would require additional components and circuits not developed nor tested by the

engine manufacturer. Without such testing, it is difficult to determine what kind of problems may be encountered.

The EMD and Stewart and Stevenson letter are enclosed as attachments to this letter.

Conclusion and Proposed Alternative

We believe that the EMD MI 9644 modification is superior to the NRC's proposed fix and that it meets the functional requirements of License Condition 2.C.21.b. We have also concluded that the addition of a prelube pump would degrade the reliability of the diesel generators because it will increase the probability of a hydraulic oil lock. Our position is that we will not install any modification that will decrease the safety of the plant or is not recommended by the vendor.

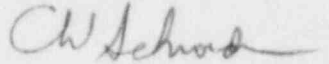
We purpose that, in light of the supporting documentation from EMD and Stewart and Stevenson, the NRC consider EMD MI 9644 as an acceptable alternative to the proposed prelube pump.

Because of normal delivery delays and design changes involved, Commonwealth Edison would appreciate your response in this matter by Friday, November 6, 1982. If the NRC does not find this alternative acceptable, Commonwealth Edison requests that a meeting be scheduled to further discuss this issue.

If there are any further questions in this matter, please contact this office.

One (1) signed original and thirty-nine(39) copies of this letter are enclosed for your use.

Very truly yours,

 10/6/82

C. W. Schroeder  
Nuclear Licensing Administrator

Enclosures:

cc: NRC Resident Inspector - LSCS  
File - LSCS Diesel Generators

5194M



## STEWART & STEVENSON SERVICES, INC.

P.O. BOX 1637 • HOUSTON, TEXAS 77001 • (713) 923-2161

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May 5, 1982

Commonwealth Edison Company  
P. O. Box 767 - SNED-35FW  
Chicago, Illinois 60690

ATTENTION: Mr. T. E. Watts

SUBJECT : LaSalle County Station  
Diesel Generator Lube Oil System Modification  
S&L Specification J-2544  
CECo P.O. #155576  
S&S W.O. #N64546

Gentlemen:

We apologize for the length of time it has taken to answer your letter of March 11, 1982. However, we still have not received a written reply from EMD stating their position on these pre-lube requirements. Our engineering comments, are as follows:

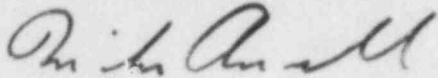
1. We do not recommend a D.C. pre-lube pump in parallel with the engine-driven pump. The M.I. 9644 modification maintains adequate lube oil levels within the engine to achieve upper-deck lubrication after very few revolutions of the engine. Since bearing design and lube requirement is a function of load and speed, sufficient residual oil will be present between normal periods of shutdown for startup.
2. M.I. 9644 maintains oil levels in the engine at elevations which keep the lower oil gallery and passages flooded, thus preventing the entrance of air. Overflow lines, properly elevated and sized, assure that lube level is maintained below the upper-engine components preventing hydraulic oil lock.
3. The M.I. 9644 modification was developed to increase engine reliability and does not adversely effect the operation of the engine.
4. As previously stated, we do not recommend a pre-lube pump in addition to the M.I. 9644 modification which was developed and tested by EMD. Addition of a pre-lube pump would require additional components and circuits not developed or tested by the engine manufacturer. Without such testing, it is difficult to determine what kind of problems would be encountered.

May 5, 1982  
Commonwealth Edison Company  
Mr. T. E. Watts  
Page - Two

We will advise you as soon as further information is received from EMD in this regard.

Very truly yours,

STEWART & STEVENSON SERVICES, INC.



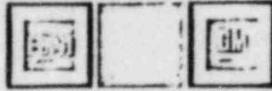
H. M. Arbuckle  
Nuclear Contracts

HMA/kb

cc: Tom Boyce  
John Weaver  
Tom Langham  
Mike Andrews  
Cooper Slay  
E. L. Seckinger - CEC.



# ELECTRO-MOTIVE



Electro-Motive Division General Motors Corporation LaGrange, Illinois 60525 (312) 387-6000

January 4, 1982

Mr. Robert Giardina  
Power Systems Branch, DSI  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Giardina:

Enclosed is a copy of Modernization Recommendation M.I. 9644 per your request.

Figures 1 and 10 on pages 2 and 17 provide a schematic representation of the modified system. In addition to the first two pages, the section on Installation (page 6) and System Check and Operation (page 12) provides additional information on the operation of the system.

Since speaking with you on December 22, 1981, I have been advised that EMD will address in an upcoming Power Pointers article the 48 hour prelube questions as it applies to fast start engines equipped with the EMD immersion heater system and the modernization recommendation in Maintenance Instruction M.I. 9644. Basically, the Pointers will indicate that the 48 hour prelube requirement does not apply to those engines so equipped. Details and exceptions will be provided in the Pointers article.

Regards,

M. J. Fleckenstein  
District Engineer  
POWER PRODUCT SERVICE

MJF:mes

cc: J. G. Hayden