PSNH

Public Service of New Hampshire
New Hampshire Yankee Division

Wendell P. Johnson
Vice President

April 11, 1986

SBN- 1002
T.F. B7.1.2

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Vincent S. Noonan, Project Director
PWR Project Directorate No. 5

References:
(a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444
(b) PSNH Letter, SBN-574, "Diesel Generator Operation at No Load", J. DeVincentis to G. W. Knighton, dated October 28, 1983
(c) PSNH Letter, SBN-903, "Resolution of Power System Branch Confirmatory Items", J. DeVincentis to G. W. Knighton, dated November 27, 1985
(d) Colt Industries Letter, "Diesel Generator Operation at No Load", G. Olson to A. M. Ebner, dated April 9, 1986

Subject: Diesel Generator Operation at No Load, SER Sections 8.3.1.2.8 and 9.5.4.1

Dear Sir:

SER Sections 8.3.1.2.8 (Page 8-10) and 9.5.4.1 (Page 9-73) indicate that electric heaters will be installed in the diesel generator air intake plenum for combustion air preheating. Reference (b) documented that these preheaters were not required based on discussions with the diesel generator manufacturer, Colt Industries. Note that Reference (b) was also transmitted as part of Appendix B to Reference (c).

In response to the NRC reviewer's request for supporting documentation for Reference (b), enclosed please find a copy of our most recent correspondence with Colt on this subject [Reference (d)]. Colt's letter documents that there is no effect on diesel generator output or operation under load after running at no-load without regard for ambient conditions. Therefore, as provided in Reference (b), there is no need to install preheaters.

The requirement given in Reference (d) of 1 hour of operation at greater than 50% load after each 24 hours of no load operation is already included in FSAR Section 9.5.8.3.

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We request that the above information be reflected in the next supplement to the Seabrook Station SER.

Very truly yours,

Wendell P. Johnson

Enclosure

cc: Atomic Safety and Licensing Board Service List

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April 9, 1986

United Engineers and Constructors
30 South 17th Street
P.O. Box 8223
Philadelphia, Pa 19101

Attention: Dr. A.M. Ebner

Subject: P.O. No. SNH-96, 9763.006-201-1
Emergency Diesel Generator Set
Public Service Co. of New Hampshire
Seabrook Station
No Load Engine Operation

Reference: A. Colt letter to the NRC dated 9/11/75
B. Colt letter #243 to D.M. Rhodes dated 8/26/83
C. Yankee Atomic letter to Colt dated 4/3/86

Attachment: Colt letter to the NRC dated 9/11/75

Gentlemen:

In response to your concern on no load operation of the Colt 7C2 engine we offer the following. Our Mr. Stonahockers letter of 9/11/75 to Mr. Fred Clemenson of the NRC in Bethesda, Md. clearly outlines Colts position on low or no load engine operation regardless of ambient conditions. The letter states the engine should be operated above 50% load for at least 1 hour for each 24 hours of low load (less than 20%) or no load operation in each 24 hour period, without regard for ambient conditions. This is consistent with the Colt Operation and Maintenance Manual for the Seabrook Plant.

The first paragraph of Colts letter #243 dated 8/26/83 was in response to a specific question directed at Colt by the NRC reviewer during an FSAR review on the PSNH Seabrook Plant. Colts answer at the time of the FSAR meeting were predicated on the specific question of <u>no</u> or <u>minimum</u> degradation of the diesels during <u>long</u> periods of no load operation.

Colt standard position is as expressed in the Sept. 11, 1975 letter to Mr. Fred Clemenson.

We trust this will resolve any questions on the no load operation of the Seabrook/Colt PC2 diesel engines.

Sincerely,

G.W. Olson, Supervisor
Contract Administration

GWO/jl

Attch.

cc: R. Casaprima - New York Sales Office
R.J. Kayser
V.T. Stonehocker
N. Traeger

Colt Industries

Power Systems Division
701 Lawton Avenue
Beloit, Wisconsin 53511
608/364-4411

September 11, 1975

U.S. Nuclear Regulating Commission
Auxiliary & Power Conversion Systems Branch
Phillips Bldg.
7920 Norfolk Avenue
Bethesda, Md. 20014

Attention: Mr. Fred Clemenson

Dear Mr. Clemenson:

This letter is in reply to your verbal inquiry of our Mr. R. H. Beadle in regard to any problems that could be encountered or limitations we would impose on the operation of our engine generator sets for extended periods (up to 30 days - 720 hrs.) at various levels of load (from no load to full rated conditions) at rated speed for standby conditions. We have made a thorough restudy of this area and come to the following conclusions.

1. There exists no mechanical limitation within the engine or any of its suppertive systems which would limit operation over extended periods of time at rated speed between no load and rated load with the exception of the possible accumulation of combustion and lube oil products in the exhaust system, at the lower loads.

2. This limitation can be overcome by the following method of operating the engine when it is necessary to keep it running over extended periods of time.

   a. For the PC2 model engine, we would suggest that if the engine were to be operated for periods of time extending over 24 hours and the loads were such that they did not exceed 20% of the engine rating, the engine should be run at above 50% load for at least one hour in each 24 hour period In order to minimize the accumulation of products of combustion and lubrication in the exhaust sytem. Above the 20% rating, the engine may be run continuously as required, with the recommendation that the engine parameters be monitored closely, and logged at least daily, so as to be able to discover any problems early. Changes in cylinder exhaust temperatures would be of particular interest.

   b. 8 1/8 OP models, the statement would read the same as for the PC2 models with the exception that the extended period should be 12 hours when the engine is operated from no load up to 30% load, with a one hour run at 50% load or greater, in each 12 hours. Above 30%

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load, the engine would require the same attention as indicated above for the Pielstick engine at above 20% load.

3. The consequences of allowing accumulation of combustion and lube oil products in the exhaust sytem would be primarily twofold:

   a. The possibility of fire hazard on resuming high load operation with exhaust temperatures above the flash point of the products accumulated.

   b. Fouling of the exhaust side of the turbochargers with probable effects on their performance and/or vibration due to upsetting the balance of the rotating assemblies.

4. We are including statements in the operating instruction manuals to cover this extended operation as indicated above.

5. We also recommend in our maintenance manuals, that there be an extensive inspection of the engine power parts after such extended operation to ascertain that all is in order and that the engine stays in readiness for further operations.

We hope this information will satisfy your needs. In the event you need further information, please contact the writer.

Very truly yours,

COLT INDUSTRIES OPERATING CORP.
FAIRBANKS MORSE ENGINE DIVISION

V. T. Stonehocker
Manager Systems Engineering

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