

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

H.A.L. B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

October 2, 1984

TELEPHONE
(704) 373-4531

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

Proposed License Condition 10, Internal Corrosion Protection for Fuel Oil Storage Tanks, which was attached to Facility Operating License NPF-24 for Catawba Unit 1, would require the application of an internal corrosion protection to the fuel oil storage tanks prior to startup following the first refueling outage or the submittal of justification for not coating the tanks.

It has been Duke's position since this issue was initially raised by the Staff during their review of the Catawba FSAR that design and operating features have been provided to minimize internal corrosion of the buried fuel oil storage tanks, and that extensive operating experience has identified no problems with uncoated tanks. In order to provide the Staff with additional justification for not internally coating the fuel oil storage tanks, surveys of local industry's experience as well as inspections of buried fuel oil tanks at other Duke facilities have been conducted.

Duke Experience

Inspections of Duke's Cliffside and Allen Steam Stations were discussed in my letter of May 31, 1984. The Cliffside Unit 5 tank had no sign of rust after six years of service. Two tanks at the Allen Steam Station were found to be in excellent condition following approximately seven years of service with no evidence of rusting or pitting except in the access standpipe where light rusting had occurred.

On December 15, 1983 an inspection was conducted of a buried fuel oil tank at Duke's Marshall Steam Station. The tank had been in service for approximately 20 years. Plate thicknesses were checked with an ultra-sonic digital thickness meter at approximately 30 points in the cylinder and 20 points on the ends. All points checked were within new tolerances as shown on the construction drawing. No serious corrosion or pitting was evident on interior surfaces or on stiffener rings or braces.

8410050216 841002
PDR ADOCK 05000413
P PDR

13021
1/1

Mr. Harold R. Denton, Director
October 2, 1984
Page 2

In order to provide further support for our position that internal tank coatings are not necessary, a 27,000 gallon underground fuel oil tank at Duke's Lee Steam Station was recently made available for inspection. After 34 years of service, minimal deterioration of the tank was noted. A detailed inspection report is attached.

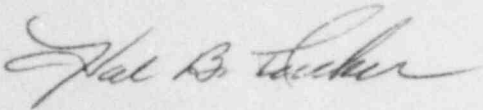
Local Industry

A survey of local industries that own large buried fuel oil storage tanks was conducted and documented in my letter of May 31, 1984. As many of those surveyed used fuel oil for purposes other than for diesel generators, a follow up survey was conducted. Five area hospitals with emergency diesel generators were contacted; none had experienced any problems with uncoated fuel oil storage tanks. The questions and responses are attached.

Conclusion

Based on Duke's extensive experience with buried fuel oil tanks, the inspections discussed above and discussions with other owners of buried fuel oil tanks, it is concluded that application of an internal coating to Catawba's fuel oil storage tanks is unnecessary and that the information provided above is responsive to Proposed License Condition 10.

Very truly yours,



Hal B. Tucker

ROS:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

NRC Resident Inspector
Catawba Nuclear Station

Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29412

Mr. Harold R. Denton, Director
October 2, 1984
Page 3

cc: Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29412

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

September 20, 1984

MEMORANDUM FOR FILE

Subject: Inspection of Underground
Fuel Oil Tank
Lee Steam Station
File: GS-564.00

On Tuesday, September 18, 1984, the 27,000 gallon underground fuel oil tank at Lee Steam Station was inspected by the following individuals:

R. G. Bustle - Fossil Production
P. R. Hammond - Design Engineering
W. R. Hough, Jr. - Fossil Production
W. F. Jones - Design Engineering
L. M. Waggoner - Design Engineering

Drawing (LM-149-6) approval date for this tank was December 30, 1949, with installation occurring at some undeterminable date in early 1950. The tank is 34 years old. Internal tank dimensions are 10' 6" diameter and 41' 8" long. It is of cylindrical configuration, installed horizontally approximately 6' below ground level. According to the tank drawing, all steel is ASTM-A283-46T, Grade B or C. New wall thickness was 5/16" with the tank heads being 3/8".

Prior to inspection the tank was cleaned by an independent contractor. All sludge and product residue was removed from interior surfaces so that the metal could be readily observed and any suspect areas easily cleaned with a wire brush and emery cloth. A ladder was carried into the tank to provide access to all areas.

Initially, a thorough visual inspection of the tank interior was made. Even though the temperature stability of an underground tank is such that condensation is minimal, some does occur in the vapor space in the upper tank area. Observable corrosion was most prominent in this area as would be expected. Upon closer examination this corrosion was found to consist of minor pitting and surface rust. Only minor pitting was evident in other areas including the tank bottom. No rust scale was found. Corrosion observed was insignificant and no corrective or stabilizing measures are recommended.

MEMORANDUM FOR FILE
Page 2
September 20, 1984

In addition to the visual inspection, ultrasonic testing as outlined in the American Petroleum Institute Guide for Inspection of Refinery Equipment was also performed. An ultrasonic thickness gauge with a digital readout in inches was used.

Forty-two readings were taken in the top of the tank between the manway and north end of the tank. The readings were as follows:

.320	.320	.308	.315
.309	.297	.284	.307
.293	.333	.310	.309
.308	.299	.298	.313
.307	.311	.309	.328
.299	.300	.302	.321
.299	.305	.308	.342
.304	.302	.307	.336
.307	.296	.340	.335
.308	.301	.312	
.329	.314	.309	

Thirty-six readings were taken approximately 1' apart along the tank bottom. The readings were:

.286	.272	.311	.304
.318	.317	.307	.313
.264	.295	.310	.317
.313	.306	.299	.304
.314	.288	.309	.292
.308	.291	.314	.300
.298	.317	.318	.309
.334	.319	.312	.310
.323	.306	.297	.296

Thirty-one readings taken at various points on the walls were as follows:

.318	.317	.318	.314
.332	.318	.312	.322
.332	.293	.308	.314
.312	.301	.324	.305
.309	.266	.321	.318
.309	.294	.323	.315
.313	.299	.318	.311
.324	.306	.316	

Fifteen readings on the tank heads were as follows:

.406	.417	.406	.404
.382	.391	.399	.415
.396	.375	.415	.398
.412	.391	.411	

The range of readings in the tank walls, from .264" to .334" represent a variation of from - 15.5% to +6.7% from the decimal equivalent of 5/16" or .3125". These values are all near the range of new steel, however, when the ASTM manufacturing tolerances ($\pm .03$ ") and the accuracy range of the ultrasonic test equipment ($\pm .010$ ") are considered.

All tank head readings were equal to or greater than 3/8" or .375" indicating no problems in this area.

Any exterior corrosion that is occurring is apparently doing so at a rate such that no problems with the tank would be expected to manifest in the next ten years. At that point the tank will again be inspected.

W. R. Hough Jr.

W. R. Hough, Jr.
Fossil Fuels Co-ordinator

WRHJr/dwk

cc:

Facility - Presbyterian Hospital, Charlotte, N.C.
(704)371-4898

Person Contacted - Mr. Jim Huggins, Construction Manager

Question: Does your facility have buried diesel fuel oil storage tanks?

Response: Yes, there are four tanks.

Question: What capacity is (are) your tank(s)?

Response: Each tank has a capacity of 25,000 gallons.

Question: Does your tank(s) have an internal coating?

Response: The tanks have no internal coating, but an external coating was applied prior to the tanks being put into service.

Question: How long has your tank(s) been in service?

Response: The tanks have been in service for nine years.

Question: Is the fuel oil used for emergency diesel generators or as boiler fuel?

Response: The fuel oil is for a diesel generator.

Question: Have you ever experienced any problems with your tank(s) (such as: clogged fuel lines, corrosion, excessive water accumulation)?

Response: We've never had any problems with the tanks.

Question: Have you ever had your tank(s) inspected?

Response: No, we've never had a need to inspect them.

Question: Does your tank(s) have a manway for access?

Response: Yes, specifically for inspection purposes, however, we've never had a reason to use it.

Question: Do you have a routine inspection program for the tank(s) and/or the fuel oil (such as: fuel oil sampling, tank cleaning, sludge removal, water draining)?

Response: I'm not positive but I'm fairly sure that we do.

Catawba Nuclear Station
Local Industry Survey
Page 2 of 5

Facility - Divine Saviour Hospital, York, South Carolina
(803)684-4231

Person Contacted - Mr. Bill Hardin, Maintenance Engineer

Question: Does your facility have buried diesel fuel oil storage tanks?

Response: Yes.

Question: What capacity is (are) your tank(s)?

Response: We have one 550 gallon tank.

Question: Does your tank have an internal coating?

Response: I don't know.

Question: How long has your tank been in service?

Response: Five years.

Question: Is the fuel oil used for emergency diesel generators or as boiler fuel?

Response: The fuel oil is used for our diesel generator.

Question: Have you ever experienced any problems with your tank?
(such as: clogged fuel lines, corrosion, excess water accumulation)

Response: No.

Question: Have you ever had your tank inspected?

Response: No.

Question: Does your tank have a manway for access?

Response: No.

Question: Do you have a routine inspection program for the tank and/or the fuel oil? (such as: fuel oil sampling, tank cleaning, sludge removal, water draining)

Response: We test for water semi-annually.

Catawba Nuclear Station
Local Industry Survey
Page 3 of 5

Facility - Charlotte Memorial Hospital, Charlotte, North Carolina
(704)331-2323

Person Contacted - Mr. Zimmerman, Maintenance Supervisor

Question: Does your facility have buried diesel fuel oil storage tanks?

Response: Yes, we have several underground tanks.

Question: What capacity are your tanks?

Response: We have three 22,000 gallon tanks, one 5,000 gallon tank and one 4,000 gallon tank.

Question: Do your tanks have an internal coating?

Response: I don't know. (Response to May, 1984 survey indicated no internal coating.)

Question: How long have your tanks been in service?

Response: The tanks have been installed anywhere from 1960 up to 1979.

Question: Is the fuel used for emergency diesel generators or as boiler fuel?

Response: It is used for diesel generators.

Question: Have you ever experienced any problems with your tanks?

Response: We once had some surface water in one of the smaller tanks, other than that no problems.

Question: Have you ever had your tanks inspected?

Response: No.

Question: Do your tanks have a manway for access?

Response: No.

Question: Do you have a routine inspection program for the tanks and/or the fuel oil (such as: fuel oil sampling, tank cleaning, sludge removal water draining)?

Response: We do a weekly water test on the fuel oil.

Catawba Nuclear Station
Local Industry Survey
Page 4 of 5

Facility - North Carolina Memorial Hospital, Chapel Hill, North Carolina
(919)966-4131

Person Contacted - Mr. Bill Parton, Maintenance Engineer

Question: Does your facility have buried diesel fuel oil storage tanks?

Response: Yes, we do.

Question: What capacity are your tanks?

Response: We have two 10,000 gallon tanks and one 5,000 gallon tank.

Question: Do your tanks have an internal coating?

Response: I'm not sure if they do or not.

Question: How long have your tanks been in service?

Response: The oldest tank has been in service for fifteen years.

Question: Is the fuel used for emergency diesel generators or as boiler fuel?

Response: It's used for our diesel.

Question: Have you ever experienced any problems with your tanks (such as: clogged fuel lines, corrosion, excessive water accumulation)?

Response: No, we haven't had any problems.

Question: Have you ever had your tanks inspected?

Response: Not the whole tank, however we do look at the top of the tanks that are accessible when we add fuel to them.

Question: Do your tanks have a manway for access?

Response: The tanks don't have manways, but we do have access to the top of the outside of the tanks.

Question: Do you have a routine inspection program for the tanks and/or the fuel oil (such as: fuel oil sampling, tank cleaning, sludge removal, water draining)?

Response: We add a supplement to the new fuel.

Facility - Wesley Long Hospital, Greensboro, North Carolina
(919)299-6815

Person Contacted - Mr. Jeff Prine, Maintenance Engineer

Question: Does your facility have buried diesel fuel oil storage tanks?

Response: Yes, we have one tank.

Question: What capacity is your tank?

Response: It's a 10,000 gallon tank.

Question: Does your tank have an internal coating?

Response: I'm not sure, I don't think so.

Question: How long has your tank been in service?

Response: For nine years.

Question: Is the fuel oil used for emergency diesel generators or as boiler fuel?

Response: It's used for our emergency diesel generator.

Question: Have you ever experienced any problems with your tank, such as: clogged fuel lines, corrosion, excessive water accumulation?

Response: No.

Question: Have you ever had your tanks inspected?

Response: No, we haven't.

Question: Does your tank have a manway for access?

Response: Yes it does.

Question: Do you have a routine inspection program for the tank and/or the fuel oil, such as: fuel oil sampling, tank cleaning, sludge removal, water draining?

Response: We don't have a program for the tanks, however we do have a contractor come in and routinely inspect our fuel oil. I don't know what all they do though.