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Date: May 30, 2003
Refer to: RRES-WQH: 03-117

Mr. Kevin Krause
Environmental Scientist
New Mexico Environment Department
Hazardous Waste Bureau
P.O. Box 26110
Santa Fe, NM 87502



SUBJECT: INTEGRITY TESTING INSPECTION REPORT FOR TA-3-26 ABOVEGROUND STORAGE TANK (AST)

Dear Mr. Krause:

On April 3, 2003, the Laboratory's Water Quality and Hydrology Group (RRES-WQH) notified your office of the discovery of diesel contaminated soil during the installation of cathodic protection near the TA-3-26 Power Plant Aboveground Storage Tank (AST). This notification was pursuant to the New Mexico Water Quality Control Commission (NMWQCC) Regulations (20 NMAC 6.2). As part of the associated initial assessments, the Laboratory obtained contract services to conduct integrity testing on the tank. The following tests were conducted on the TA-3-26 AST:

- Floor Ultrasonic Thickness Measurements
- Tank Floor Elevation Measurements
- Visual Inspection of the Roof Underside

The "In-Service Internal Floor Inspection Report" provides information on the tests conducted and associated conclusions/results. Test conclusions of this report indicate that no floor integrity issues were detected (Please see Enclosure 1).

Please contact Mark Haagenstad at (505) 665-2014 or Mike Saladen at (505) 665-6085 should you have any questions on this report.

Sincerely,

Steven Rae
Group Leader
Water Quality & Hydrology Group



SR:MH/tml

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In-Service Internal Floor Inspection Report

Prepared for:

Los Alamos National Labs
#2 Diesel Fuel
Tank SM-26

Los Alamos, NM



Prepared by:

inTANK
Clean - Inspect - Manage

Report # R0216402

InTANK Services, Inc.
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Laurel, Maryland 20723
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In-Service Internal Floor Inspection Report

Los Alamos National Labs

Inspection Dates:

April 29, 2003 to April 30, 2003

It is recommended that this document,
containing valuable historical information,
be retained for the lifetime of the tank.

**Armando Gonzalez
API 653 Aboveground Tank Inspector Certificate # 23988**

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1 Tank Description

The physical characteristics of Tank SM-26 are summarized below.

**Table 1-1
Tank Description**

GENERAL:	
TANK NUMBER:	SM-26
OWNER:	Los Alamos National Labs
TANK LOCATION:	Los Alamos, NM
MANUFACTURER:	Horton Tank, Chicago Bridge & Iron Co.
PRODUCT:	#2 Diesel Fuel
CATHODIC PROTECTION:	No
DATA PLATE PRESENT:	Yes
DIMENSIONS:	
DIAMETER:	35 feet
HEIGHT:	22 feet
GEOMETRY:	
FOUNDATION:	Concrete Ringwall
BOTTOM:	Lap Welded
SHELL:	Butt Welded
FIXED ROOF:	Cone
DATES:	
YEAR BUILT:	1950
LAST INSPECTION:	2002, External API 653; *
ACCESS:	
FIXED ROOF:	Spiral Stairway
COATINGS:	
BOTTOM:	Lined; Type Unknown
SHELL:	Silver Paint
FIXED ROOF:	Silver Paint

* Previous inspection report was provided to InTANK Services, Inc.

2 Job Summary

InTANK Services, Inc. (ITS) conducted a tank inspection for Los Alamos National Labs, Tank SM-26, located in Los Alamos, NM from April 29, 2003 to April 30, 2003. The primary purpose of the inspection was to conduct an internal floor inspection on Tank SM-26 without removing the tank from service. The inspection included the following:

- Floor Ultrasonic Thickness Measurements
- Tank Floor Elevation Measurements
- Visual inspection of the underside of the roof

The tank was on-stream during the inspection. InTANK's On-stream Tank Inspection System (OTIS) was deployed into the 35 foot diameter tank with approximately 18.5 feet of #2 Diesel Fuel. There was between 6" and 12" of sludge on the tank bottom. All collected data was analyzed off site.

This report presents the inspection results on Tank SM-26.

2.1 Ultrasonic Floor Thickness Results

A total of 49 ultrasonic thickness (UT) runs were systematically taken of the tank floor. A typical run was two (2) feet long and consisted of 1,200 UT readings resulting in 58,800 data points taken of the tank floor.

The average measured floor thickness was .252 inches. The highest measured floor thickness was .262 inches recorded during run 19. The minimum measured floor thickness was .196 inches recorded during run 18. There were 4 runs where plate thinning of 10% or more was noted during this in-service floor inspection.

When using the minimum floor thickness calculations, MRT1 from API 653 section 4.4.7, the life expectancy is greater than 20 years. See Table 4-2 for calculation details.

2.2 Tank Floor Elevation Measurements

Tank floor elevation variations were calculated using the elevation data gathered during this in-service inspection. The data consisted of 53 runs, 49 of which were UT runs and four (4) runs of additional elevation data. The maximum measured depth change has suggested that the floor is out of level by approximately 1.4 inches. See Section 5 for visual representation of the elevation profile.

The elevation runs taken did not reveal excessive deviation. Bottom settlement was within acceptable limits according to API 653 Appendix B (Evaluation of tank bottom).

2.3 Visual Inspection

2.3.1 Quik-Look™ Video Results

The fixed roof underside plates and joints appear to be in acceptable condition. No mechanical damage or distortion is evident in the video.

Initial stages of corrosion seem to be developing in areas of the fixed roof underside plates, shell walls, and roof rafters. Consideration should be given to cleaning and coating these areas at the next opportunity.

The central column support and the joint areas between roof rafters and shell walls appear to be in satisfactory condition.

The vapor space of the tank appears to be in acceptable condition.

3 Conclusion and Recommendations

3.1 Floor Inspection Results

Rummel, Klepper and Kahl, LLP Consulting Engineers has reviewed all the data provided in the In-Service Internal Floor Inspection Report prepared by InTank, Inc. for the Los Alamos National Labs #2 Diesel Fuel Tank SM-26 in Los Alamos, NM. The engineering review included checking all the provided data and calculations and ensuring their compliance with applicable standards.

Based on the data provided from the internal inspections no tank floor integrity issues were detected. Over the fifty-three (53) years that the tank has been in service it has experienced a 0.0010-inch per year corrosion rate. Approximately 8% of the floor ultrasonic thickness runs indicated bottomsides corrosion. The most severe of the pitting areas has experienced a 21.6% metal loss.

Using the minimum remaining thickness (MRT) calculations from API 653 4.4.7.1 the tank floor has an estimated life in excess of twenty (20) years. Based on the calculated corrosion rate for the tank floor and in accordance with API Standard 653 paragraph 6.4.2, the next internal floor inspection should not exceed twenty (20) years. It is also recommended that monthly inspections and five (5) year external inspections be conducted as recommended in API 653.

The Quik-Look™ camera system identified some areas in the fixed roof underside plates, shell walls, and roof rafters that show the initial stages of localized internal corrosion. Based on the results of the internal inspection we recommend an internal inspection of these areas the next time the tank is out of service.

4 UT Floor Runs

The following shows the UT run distributions taken during the in-service inspection.

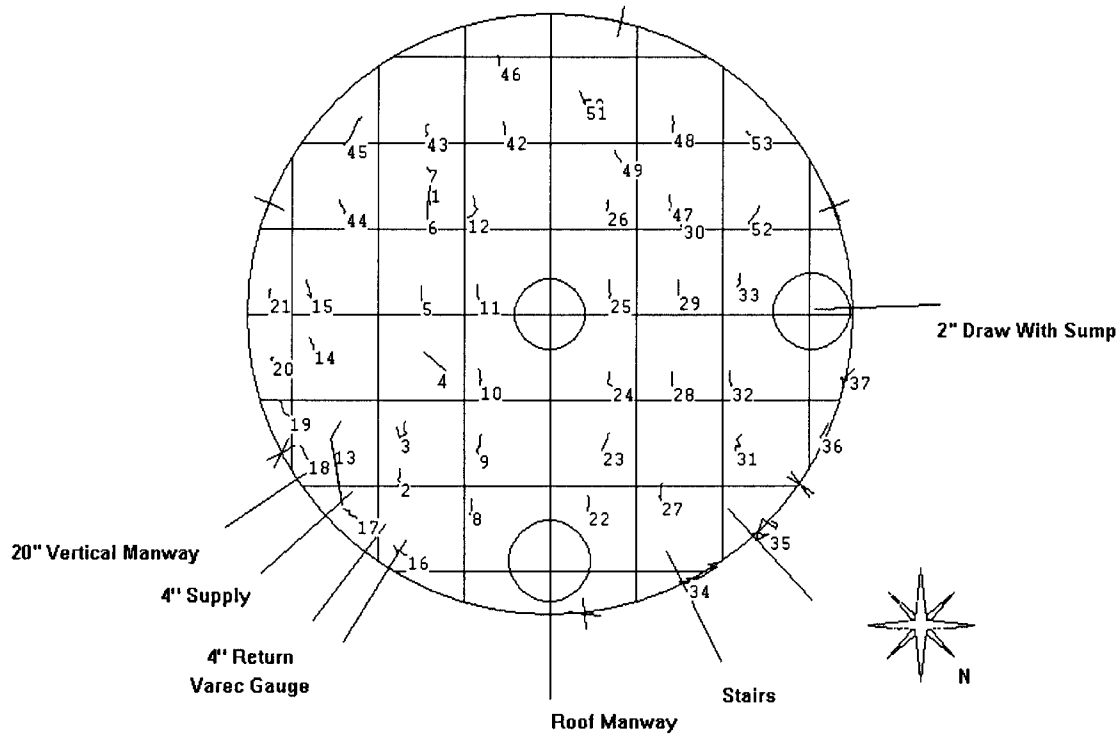


Figure 4-1

Distribution of All UT Runs

Note: Numeric values represent run numbers. Each run is approximately 2 feet long. The grid represented above is in 5.14 foot increments. See Table A.5-1.

4.1 Plate Thinning Areas

The following shows the UT runs where plate loss was at least 10% less than design.

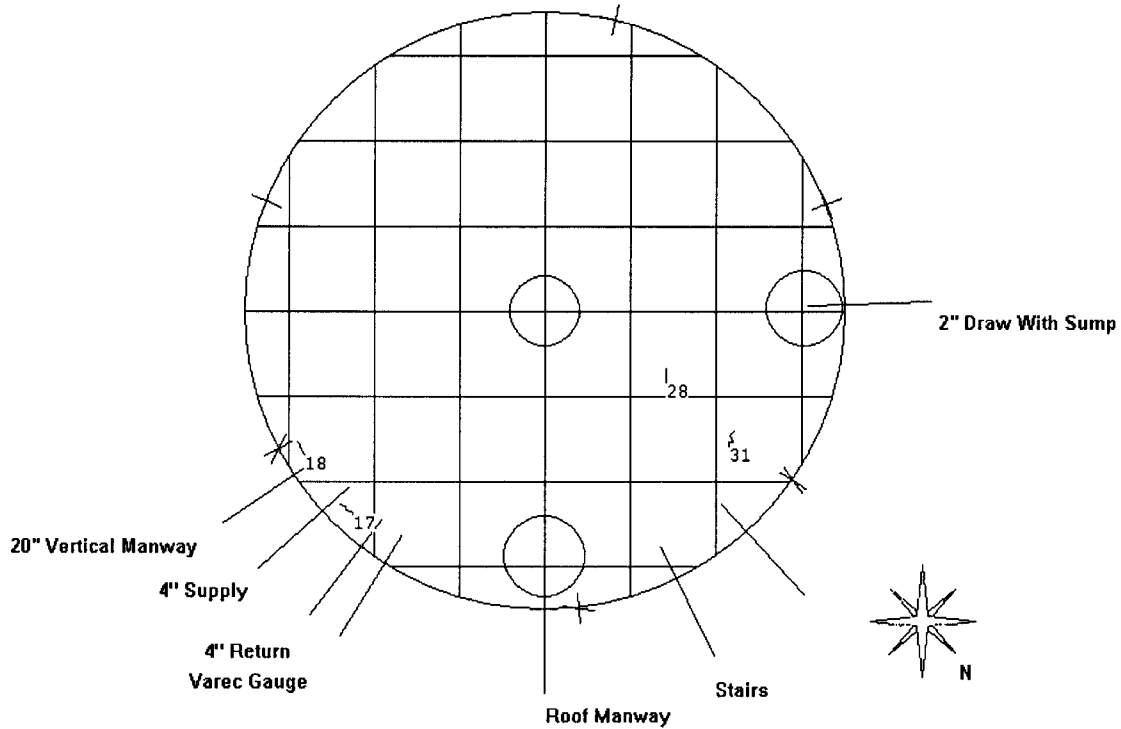


Figure 4-2

Distribution of Plate Thinning Areas Greater than 10% of Nominal Plate Thickness

Note: Numeric values represent run numbers. Each run is approximately 2 feet long. The grid represented above is in 5.14 foot increments.