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NWS EARLE
5090.3a

UNDERGROUND STORAGE TANK INTEGRITY TESTING NWS EARLE NJ

5/18/1990

KASELAAN AND D'ANGELO ASSOCIATES, INC.

UNDERGROUND STORAGE TANK INTEGRITY TESTING

NWS EARLE, COLTS NECK, NEW JERSEY

PREPARED FOR

NORTHERN DIVISION, NAVFAC

NAVAL BASE, PHILADELPHIA

K&D PROJECT #E1-1629-19

MAY 18, 1990

PREPARED BY

KASELAAN & D'ANGELO ASSOCIATES, INC.

A HILL GROUP COMPANY

ENVIRONMENTAL SCIENCE AND ENGINEERING

HADDON HEIGHTS, NEW JERSEY

BOSTON O LOS ANGELES O NEW ORLEANS O NEW YORK O WASHINGTON

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MAY 21, 1990

PREPARED BY: _____
ANDREW C. ROLA, P.E.
PROJECT MANAGER

REVIEWED BY: _____
VALDUR KASELAAN
DIRECTOR OF ENGINEERING

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1.0 INTRODUCTION

Kaselaan & D'Angelo Associates has conducted tank system integrity tests on two (2) tanks at Naval Weapon Station (NWS) Earle, Colts Neck, New Jersey. Specifically, a 1,000 gallon fuel oil tank at Quarters S-106 and a 500 gallon tank at Quarters G were exposed to the tank top, isolated from the lines and individually tested. A retest was performed which included individual line tests and tank tests to determine the source of the leak.

The work was performed on May 3 and May 7, 1990. The tank test data is included in Appendix A. The testing was performed for Northern Division, NAVFAC, under the direction of Mr. Brian Helland, Code 1412.

2.0 PROCEDURE

The Petro-tite tank testing method was used for tank system tests and retests. The general procedure is as follows:

> The Petro-Tite tank testing system meets and exceeds the National Fire Protection Associations (NFPA) "precision test" criteria of accuracy for a tight tank of five-one hundredths (.05) of a gallon per hour. In Petro-Tite tank testing the product in the tank is circulated by a pump to de-stratify the liquid and to create a uniform temperature. All openings on the tank are sealed off except for the vent line. The fill and return lines are capped and bled so the lines can also be tested. The tank and piping are overfilled with the extra product filling the observation standpipe. This additional filling of the tank and lines is needed to deflect the tank ends and to apply an extra 4 pounds of positive hydrostatic pressure to the bottom of the tank. The standpipe is monitored for changes in product level with the graduated cylinder. Any variation changes due to temperature change, exterior pressure exerted by the water table and/or tank end deflection are differentiated from that of an actual leak. A tank is "tight " if the net volume change is $\leq \pm$ .05 gph.
>
> If the system test is "not tight", a retest is usually performed. During a retest, all the soil along the top of the tank is excavated and tank lines are disconnected from the tank. All fittings on top of the tank are tightened and the tank is tested individually. The lines are separately tested either pneumatically or hydrostatically. If the tank and lines are tight, the lines are reconnected to the tank and the tank is backfilled. If a tank leak is found, the tank is left excavated for removal or repair. If a line leak is found, it is repaired and the hole is backfilled. If a line leak is detected that cannot be readily repaired, the area of the leak is left excavated for future repair.

For the two particular tanks tested at NWS Earle, the top of the tank was initially exposed the lines isolated from the tanks and all fittings sealed. The tanks were then individually tested to determine if they were leaking.

3.0 FINDINGS

The results of all tests are contained in Table I. The tank test data is contained in Appendix A.

It should be noted that the 1,000 gallon tank at S-106 appeared to leak so fast that a leak rate could not be measured. The product level in the standpipe continued to drain into the tank several times after all vapor pockets were removed and bung holes sealed. The entire tank top was exposed and no visible leaks at the tank top were observed. There appears to be a definite problem with this tank.

Tank S-106 is located in a housing complex with over 20 other similar 1,000 gallon underground storage tanks. S-106 is topographically the most downgradient tank in the housing complex. It appears that leaks from any of the other fuel oil tanks in the complex would migrate towards S-106 until encountering groundwater. The localized groundwater which is relatively shallow also flows from the housing complex towards S-106.

At Quarters G, the surrounding grade is flat and fuel oil leaks will likely travel in the direction of groundwater flow or follow migration routes along subsurface utilities, storm drains or the septic system. A septic tank lies adjacent to this tank and could be contaminated with fuel oil. There exists a basement at Quarters G which could also be a receptor of fuel oil contamination. The basement should be inspected for odors, and flammable or toxic levels of gas vapors.

4.0 RECOMMENDATIONS

Because the two tanks that were tested are closed, existing federal regulations (40 CFR 280.71) require them to be removed or abandoned according to API 1604. 40 CFR 280.72 requires a site assessment performed for all tank closures.

To complete a site assessment in accordance with New Jersey guidelines, and because the tanks have leaked, we recommend a sampling plan be developed and implemented to delineate the horizontal and vertical extent of contamination. In addition groundwater monitoring wells should be installed upgradient and downgradient of each leaking tank to establish if these tanks are a source of groundwater contamination. We also recommend a groundwater monitoring plan be implemented for the entire housing complex upgradient of S-106 because of the quantity of tanks located there.

APPENDICES

A. Tank Testing Data
S-106
Quarters G

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property ☐ Tank(s) ☐

FORT EARLE
Name | Address | Zip | Representative | Telephone

Route 36 New Jersey
Name | Address | Zip | Representative | Telephone

2. OPERATOR

SAME AS ABOVE
Name | Address | Zip | Telephone

3. REASON FOR TEST (Explain Fully)

DEC REGULATIONS

4. WHO REQUESTED TEST AND WHEN

MR. ANDY Rola — Title — K+D ASSOCIATES — Company or Affiliation — Date

GROVE STREET, HADDON HEIGHTS NJ 08035 (609)547-6500
Address | Zip | Telephone

5. TANK INVOLVED (Use additional lines for manifolded tanks)

Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
TANK S106	1,000	Fuel Oil	#2	?	STEEL

6. INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
TANK S106	EARTH	2" direct	1½"	—	SUCTION
North inside driveway, Rear of station, etc.	Concrete, Black Top, Earth, etc.	Size, Titefill make, Drop tubes, Remote Fills	Size, Manifolded	Which tanks?	Suction, Remote, Make if known

7. UNDERGROUND WATER

Depth to the water table from grade Below tank

Is the water over the tank? ☐ Yes ☒ No

8. FILL-UP ARRANGEMENTS

Tanks to be filled AM hr. 7 May 90 Date Arranged by
Name | Telephone

Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.
TRANSFER done by Tank Tech Corp, using skid tank

Terminal or other contact for notice or inquiry
Company | Name | Telephone

9. CONTRACTOR, MECHANICS, any other contractor involved

10. OTHER INFORMATION OR REMARKS

Additional information on any items above. Officials or others to be advised when testing is in progress or completed. Visitors or observers present during test, etc.

11. TEST METHOD

☒ PETRO TITE ☐ PETRO COMP ☐ QUICK CHECK 2000

11a. TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows:

Tank Identification	Tight	Leakage Indicated	Date Tested
TANK S106	NO	greater than 10 G.P.H	5-7-90

12. SENSOR CERTIFICATION

DEC 89
Date

Serial No. of Thermal Sensor

13. CONTRACTOR CERTIFICATION

Technicians

1. STEPHEN MCGUIRE
Certification # 110613120

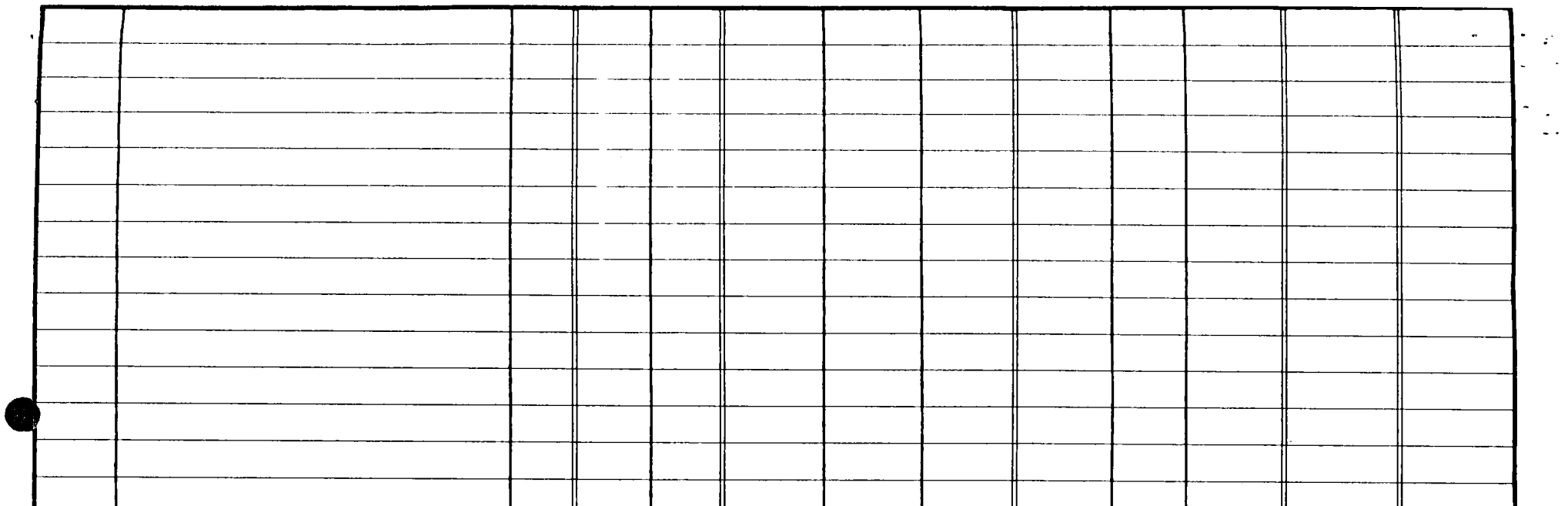
2. John McKeaghin
Certification # 110613744

TANK TECH CORP
Testing Contractor or Company. By: Signature

365 ROUTE 9W CONGERS, NY 10920
Address

PN6827

27. Sensor Calibration ____ / ____ LOG OF TEST PROCEDURES			30. HYDROSTATIC PRESSURE CONTROL		31. VOLUME MEASUREMENTS (V) RECORD TO .001 GAL			34. TEMPERATURE COMPENSATION USE FACTOR (a)			38. NET VOLUME CHANGING EACH READING	39. ACCUMULATED CHANGE
28. DATE 7MAY90 TIME (24 hr.)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	Standpipe Level in Inches: Beginning of Reading	Standpipe Level in Inches: Level to which Restored	32. Product in Graduate: Before Reading	32. Product in Graduate: After Reading	33. Product Replaced (-) Product Recovered (+)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) × (a) = Expansion + Contraction -	Temperature Adjustment: Volume Minus Expansion (+) or Contraction (-) #33(V) — #37(T)	At Low Level compute Change per Hour (NFPA criteria)
0930	Arrived at site, determined water table											
0935	Transferring fuel using the skid tank we brought with us.											
	Transferring on this tank complete. Tim will continue to transfer on the tank at the other site, "quarters "G"											
	Set up Petrotite equipment											
	Topping tank & equipment											
	Product will not maintain a level in standpipe											
	After making sure the problem wasn't air or anything else, stopped test and											
	broke down equipment. We are also tranferring the thousand gallons											
	out of the tank.											
1315	Transferring complete. leaving for other test site											



14. Earle A/F Base | Rt 36 | NJ

Name of Supplier, Owner or Dealer | Address No. and Street(s) | City | State | Date of Test

15. TANK TO TEST

Tank S106
Identity by position

#2 Heating Oil
Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY

Nominal Capacity 1000 Gallons

By most accurate capacity chart available 1005 Gallons

From
- ☐ Station Chart
- ☐ Tank Manufacturer's Chart
- ☐ Company Engineering Data
- ☒ Charts supplied with Tank Tester
- ☐ Other

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up 0 to ¼" in. | 0 Gallons | 64 Tank Diameter in.

Total Gallons ea. Reading

Inventory in Tank		1005
Water Bottom	−	0
Top off equipment	+	5
Total Quantity		1010

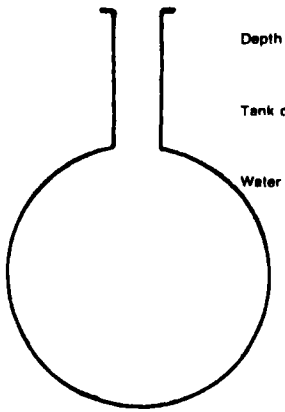
18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK ☐ Water in tank ☐ Line(s) being tested with LVLLT ☐ High water table in tank excavation

See manual sections applicable. Check below and record procedure in log (27).

Use maximum allowable test pressure for all tests.
Four pound rule does not apply to doublewalled tanks.

Complete section below:

1. Is four pound rule required? Yes ☒ No ☐
2. Height to 12" mark from bottom of tank 132 in.
3. Pressure at bottom of tank 4.09 P.S.I.
4. Pressure at top of tank 2-11 P.S.I.



Depth of burial 101 in.
Tank dia. 64 in.
Water table to tank bottom Below Tank in.
NOTES:

The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.

Refer to N.F.P.A. 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* 101 in.
Add 30" for "T" probe assy. 30 in.
Total tubing to assemble — approximate 132 in.

20. EXTENSION HOSE SETTING

Tank top to grade* 35 in.
Extend hose on suction tube 6" or more below tank top N/A in.

*If Fill pipe extends above grade, use top of fill.

USE WITH THERMAL SENSOR PN5039 (Blue Box)

22. Thermal-Sensor reading after circulation _____ digits _____ °F Between

23. Digits per °F in range of expected change _____ digits

24a. IF USING THERMAL SENSOR DTS-2000 OR QC-2000 WHICH READ 1000 DIGITS PER °F TRANSFER 1000 TO LINE 26, DIGITS PER °F IN TEST RANGE.

21. VAPOR RECOVERY SYSTEM ☐ Stage I ☐ Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product #2 Heating Oil
Hydrometer Employed _____ H
Temperature in Tank After Circulation _____ °F
Temperature of Sample _____ °F
Difference (+/−) _____ °F
Observed A.P.I. Gravity _____
Reciprocal _____ Page # _____

_____ (Total quantity in full tank (17)) × _____ (Reciprocal) = _____ (Volume change in this tank per °F) Transfer to Line 26a.

24c. FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C from Thermal Sensor N/A °F
Coefficient of Water Table D N/A
Added Surfactant? ☐ Yes ☐ No Transfer COE to Line 25b.

25. (a) N/A Total quantity in full tank (17) × (b) N/A Coefficient of expansion for involved product = (c) N/A Volume change in this tank per °F gallons

26. (a) _____ Volume change per °F (25 or 24b) ÷ _____ Digits per °F in test Range (23 or 24a) = _____ Volume change per digit Compute to 4 decimal places. This is test factor (a)

Quarters G

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property ☐ Tank(s) ☐

Name	Address	Zip	Representative	Telephone
FORT EARLE	ROUTE 36 NEW JERSEY			
Name	Address	Zip	Representative	Telephone

2. OPERATOR

Name	Address	Zip	Telephone
SAME AS ABOVE			

3. REASON FOR TEST (Explain Fully)

DEC REGULATIONS

4. WHO REQUESTED TEST AND WHEN

Name	Title	Company or Affiliation	Date
MR. ANDY ROLA		K+D ASSOCIATES	
515 GROVE ST	HADDON HEIGHTS NJ 08035	(609) 547-6500	
Address	Zip	Telephone	

5. TANK INVOLVED Use additional lines for manifolded tanks

Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
QUARTER "G"	550	fuel oil	#2	?	Steel

6. INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
QUARTER "G"	EARTH	3' direct	1½"	—	SUCTION
North inside driveway, Rear of station, etc.	Concrete, Black Top, Earth, etc.	Size, Titefill make, Drop tubes, Remote Fills	Size, Manifolded	Which tanks?	Suction, Remote, Make if known

7. UNDERGROUND WATER

Depth to the water table from grade BELOW TANK

Is the water over the tank? ☐ Yes ☐ No

8. FILL-UP ARRANGEMENTS

Tanks to be filled AM hr. 7 MAY 90 Date Arranged by _____ Name Telephone

Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.

Tranfer done by Tank Tech Corp, using skid tank.

Terminal or other contact for notice or inquiry _____ Company Name Telephone

9. CONTRACTOR, MECHANICS, any other contractor involved

10. OTHER INFORMATION OR REMARKS

Additional information on any items above. Officials or others to be advised when testing is in progress or completed. Visitors or observers present during test, etc.

11. TEST METHOD

☒ PETRO TITE ☐ PETRO COMP ☐ QUICK CHECK 2000

11a. TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows:

Tank Identification	Tight	Leakage Indicated	Date Tested
Quarter "G"	NO	-.155 GPH	5-4-90

12. SENSOR CERTIFICATION

Dec 89
Date

Serial No. of Thermal Sensor

13. CONTRACTOR CERTIFICATION

Technicians

1. Stephen McGuire
Certification # 110613120

2. John McKearnin
Certification # 110613744

TANK TECH CORP
Testing Contractor Company. By: Signature
Steven M. Asquith
365 ROUTE 9W CONGERS, NY 10920
Address

PN6827

27. Sensor Calibration ______ / ______ LOG OF TEST PROCEDURES		30. HYDROSTATIC PRESSURE CONTROL		31. VOLUME MEASUREMENTS (V) RECORD TO .001 GAL			34. TEMPERATURE COMPENSATION USE FACTOR (a)			38. NET VOLUME CHANGING EACH READING	39. ACCUMULATED CHANGE
28. DATE 1 May 90 TIME (24 hr)	Record details of setting up and running test (Use full length of line if needed.)	29. Reading No	Standpipe Level in Inches: Beginning of Reading	Standpipe Level in Inches: Level to which Restored	32. Product in Graduate: Before Reading	32. Product in Graduate: After Reading	33. Product Replaced (-) / Product Recovered (+)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) × (a) = Expansion + Contraction -	Temperature Adjustment: Volume Minus Expansion (+) or Contraction (-) #33(V) — #37(T)	At Low Level compute Change per Hour (NFPA criteria)
1330	Arrived at site											
1335	Assembled test equipment											
											f(A=.0008)	
1350	Pump primed & Running							11				
1400	First Sensor Reading			42				605				
1415	Started High level	1	40.8	42	.540	.490	-.050	627	+22	+.018	-.068	
1430		2	40.8	42	.490	.440	-.050	654	+27	+.022	-.072	Direct sun
1435	*Direct Sun On Tank*	3	41.2	42	.440	.410	-.030	704	+50	+.040	-.070	now on
1500		4	41.3	42	.410	.385	-.025	744	+40	+.032	-.057	tank.
	Dropped to low level											
1530	First Sensor Reading			12		.380		793				
1535	Started low level	1	11.9	12	.380	.375	-.005	802	+9	+.007	-.012	
1540		2	11.9	12	.375	.370	-.005	810	+8	+.006	-.011	-.023
1545		3	11.9	12	.370	.365	-.005	820	+10	+.008	-.013	-.036
1550		4	11.9	12	.365	.360	-.005	830	+10	+.008	-.013	-.049
1555		5	11.9	12	.360	.355	-.005	840	+10	+.008	-.013	-.062
1600		6	11.9	12	.355	.350	-.005	849	+9	+.007	-.012	-.074
1605		7	11.9	12	.350	.345	-.005	859	+10	+.008	-.013	-.087
1610		8	11.9	12	.345	.340	-.005	867	+8	+.006	-.011	-.098
1615	Low level Continued	9	11.9	12	.340	.335	-.005	877	+10	+.008	-.013	-.111
1620		10	11.9	12	.335	.330	-.005	886	+9	+.007	-.012	-.123
1625		11	11.9	12	.330	.325	-.005	896	+10	+.008	-.013	-.136
1630		12	11.9	12	.325	.320	-.005	904	+8	+.006	-.011	-.147
1635		13	11.9	12	.320	.315	-.005	913	+9	+.007	-.012	-.159
1640		14	11.9	12	.315	.310	-.005	923	+10	+.008	-.013	-.172
1645		15	11.9	12	.310	.305	-.005	933	+10	+.008	-.013	-.185
1650		16	11.9	12	.305	.300	-.005	942	+9	+.007	-.012	-.197

KT CW.IC [illegible] 1 May 90

1655		17	11.9	12	.300	.295	-.005	952	+10	+.008	-.013	-.210
1700		18	11.9	12	.295	.290	-.005	961	+9	+.007	-.012	-.222
1705		19	11.9	12	.290	.285	-.005	971	+10	+.008	-.013	-.235
1710		20	11.9	12	.285	.280	-.005	979	+8	+.006	-.011	-.246
1715		21	11.9	12	.280	.275	-.005	989	+10	+.008	-.013	-.259
1720		22	11.9	12	.275	.270	-.005	998	+9	+.007	-.012	-.271
1725		23	11.9	12	.270	.265	-.005	007	+9	+.007	-.012	-.283
1730		24	11.9	12	.265	.260	-.005	017	+10	+.008	-.013	-.296
1735		25	11.9	12	.260	.255	-.005	027	+10	+.008	-.013	-.309
	END OF TEST											
		System test failure @ -.309 ÷ 2 = (.155 G.P.H)										

P-T Tank Test Data Chart
Additional Info

1. Net Volume Change at Conclusion of Precision Test ____ gph

Signature of Tester: Stephen McGuire

Date: _____

2. Statement:

☐ Tank and product handling system has been tested tight according to the Precision Test Criteria as established by regulatory agency. This is not intended to indicate permission of a leak.

OR

☐ Tank and product handling system has failed the tank tightness test according to the Precision Test Criteria as established by regulatory agency

OR

☐ Test invalid due to environmental or mechanical factors beyond control of the testing equipment.

It is the responsibility of the owner and/or operator of this system to immediately advise state and local authorities of any implied hazard and the possibility of any reportable pollution to the environment as a result of the indicated failure of this system. The manufacturer of this test method does not assume any responsibility or liability for any loss of product to the environment.

Tank Owner/Operator _____

Date _____

14. FORT DIX | Name of Supplier, Owner or Dealer | Address No. and Street(s) | City: N.J | State | Date of Test: 1 MAY 90

15. TANK TO TEST
QUARTER G"
Identity by position
#2 fuel oil
Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD
See map

16. CAPACITY
Nominal Capacity 550 Gallons
By most accurate capacity chart available 564 Gallons

From
- ☐ Station Chart
- ☐ Tank Manufacturer's Chart
- ☐ Company Engineering Data
- ☐ Charts supplied with Tank Tester
- ☐ Other

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up _____ to ¼" In. _____ Gallons _____ Tank Diameter In.

Total Gallons ea. Reading

Inventory in Tank		564
Water Bottom	−	0
Top off equipment	+	10
Total Quantity		574

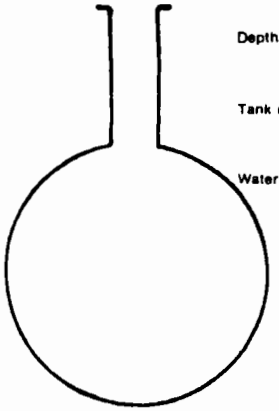
18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK
☐ Water in tank ☐ Line(s) being tested with LVLLT ☐ High water table in tank excavation

See manual sections applicable. Check below and record procedure in log (27).

Use maximum allowable test pressure for all tests.
Four pound rule does not apply to doublewalled tanks.

Complete section below:

1. Is four pound rule required? Yes ☒ No ☐
2. Height to 12" mark from bottom of tank 129 in.
3. Pressure at bottom of tank 4.0 P.S.I.
4. Pressure at top of tank 2.5 P.S.I.



Depth of burial 55 in.
Tank dia. 48 in.
Water table to tank bottom BELOW TANK in.
NOTES:

The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.

Refer to N.F.P.A. 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY
Bottom of tank to grade* 98 in.
Add 30" for "T" probe assy. 30 in.
Total tubing to assemble — approximate 132 in.

20. EXTENSION HOSE SETTING
Tank top to grade* 55 in.
Extend hose on suction tube 6" or more below tank top 24 in.
*If Fill pipe extends above grade, use top of fill.

USE WITH THERMAL SENSOR PN5039 (Blue Box)
22. Thermal-Sensor reading after circulation 11605 digits
57-58 °F Between
23. Digits per °F in range of expected change 317 digits

21. VAPOR RECOVERY SYSTEM ☐ Stage I ☐ Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD
Type of Product #2 fuel oil
Hydrometer Employed 4 H
Temperature in Tank After Circulation 57 °F
Temperature of Sample 64 °F
Difference (+/−) +7 °F
Observed A.P.I. Gravity 34.0
Reciprocal 2190 Page # 38

574 (Total quantity in full tank (17)) ÷ 2190 (Reciprocal) = .262100456 (Volume change in this tank per °F)
Transfer to Line 26a.

24a. IF USING THERMAL SENSOR DTS-2000 OR QC-2000 WHICH READ 1000 DIGITS PER °F TRANSFER 1000 TO LINE 26, DIGITS PER °F IN TEST RANGE.

24c. FOR TESTING WITH WATER see Table C & D
Water Temperature after Circulation Table C from Thermal Sensor N/A °F
Coefficient of Water Table D N/A
Added Surfactant? ☐ Yes ☐ No Transfer COE to Line 25b.

25. (a) N/A Total quantity in full tank (17) × (b) N/A Coefficient of expansion for involved product = (c) N/A Volume change in this tank per °F gallons

26. (a) .262100456 Volume change per °F (25 or 24b) ÷ 317 Digits per °F in test Range (23 or 24a) = .000826815 Volume change per digit Compute to 4 decimal places. This is test factor (a) f(A=.0008)

TANK TECH CORP

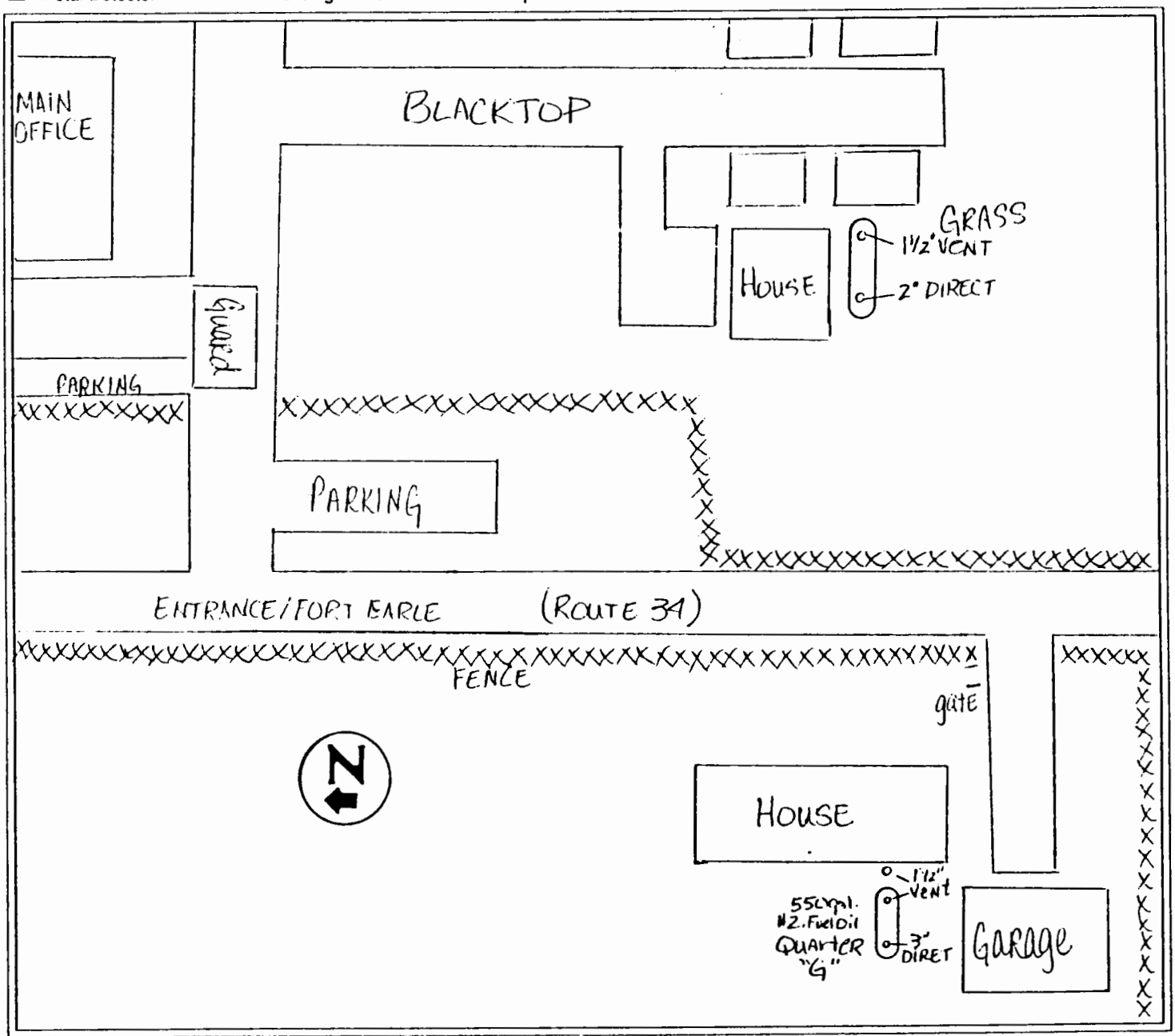
UST LOCATION DOCUMENT

Site Diagram

Indicate the following on the diagram: true north, building location, tank location and direction, tank to grade openings, fences, walls, driveways, transformers, loading docks, pump islands, boiler room, and any other useful information.

The following have been used to determine underground locations:

☐ Metal Detector ☐ Building Prints ☐ Pipe and Line Locator ☐ Site Prints



Notes

Tested 7 MAY 90

Client Fort EARLE

Site Address _____

_____

Town/Village _____

County _____

Cross Street _____

Map _____ Page _____ Grid _____

Block _____ Lot _____

Utility Info # _____

Plate _____ of _____