

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property <input checked="" type="checkbox"/> Tank(s) <input checked="" type="checkbox"/>	REVENNA ARSENAL					
	Name	Address	Representative	Telephone		
2. OPERATOR	SAME					
	Name	Address	Representative	Telephone		
3. REASON FOR TEST (Explain Fully)	NEW LAWS					
4. WHO REQUESTED TEST AND WHEN	WAYNE CARLIDO					
	Name	Title	Company or Affiliation	Date		
5. TANK INVOLVED Use additional lines for manifolded tanks	Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
	#11 R/R YARD	15,000		#2 Fuel Oil	49 YRS	STEEL
6. INSTALLATION DATA	Location	Cover	Fills	Vents	Siphones	Pumps
	North inside driveway, Rear of station, etc.	EARTH	2" + 3"	2"	N/A	suction
7. UNDERGROUND WATER	Is the water over the tank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
	Depth to the Water table <u>725</u>					
8. FILL-UP ARRANGEMENTS	Tanks to be filled _____ hr. _____ Date Arranged by _____ Name _____ Telephone _____					
	Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.					
9. CONTRACTOR, MECHANICS, any other contractor involved	Terminal or other contact for notice or inquiry _____ Company _____ Name _____ Telephone _____					
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 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		
#11 R/R YARD	NO	- .353 G.P.H.	1-26-90			
12. SENSOR CERTIFICATION 3-89 Date 2408 Serial No. of Thermal Sensor	13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.					
	Technicians 1. <u>A.L. BEARS</u> Certification # <u>12U10645</u> 2. _____ Certification # _____			ALL OHIO PETRO TEST INC. Testing Contractor or Company. By: Signature <u>2507 4th ST. N.W. CANTON, OHIO 44708</u> Address		

1300	4	11.5	12	.225	.205	-.020	253	+1	+0.023	-.043	-.215
1305	7	11.5	12	.985	.965	-.020	253	+0	+0.000	-.020	-.235
1310	8	11.4	12	.965	.940	-.025	253	+0	+0.000	-.025	-.260
1315	9	11.4	12	.940	.915	-.025	254	+1	+0.023	-.048	-.308
1320	10	11.4	12	.915	.890	-.025	254	+0	+0.000	-.025	-.333
1325	11	11.4	12	.890	.865	-.025	255	+1	+0.023	-.048	-.381
1330	12	11.4	12	.865	.840	-.025	254	-1	-.023	-.002	-.383
1335	13	11.4	12	.840	.815	-.025	255	+1	+0.023	-.048	-.431
1340	14	11.4	12	.815	.790	-.025	255	+0	+0.000	-.025	-.456
1345	15	11.4	12	.790	.765	-.025	256	+1	+0.023	-.048	-.504
1350	16	11.4	12	.765	.740	-.025	256	+0	+0.000	-.025	-.529
1355	17	11.4	12	.740	.715	-.025	256	+0	+0.000	-.025	-.554
1400	18	11.4	12	.715	.690	-.025	255	-1	-.023	-.002	-.556
1405	19	11.4	12	.690	.665	-.025	255	+0	+0.000	-.025	-.581
1410	20	11.4	12	.665	.640	-.025	256	+1	+0.023	-.048	-.629
1415	21	11.4	12	.640	.615	-.025	256	+0	+0.000	-.025	-.645
1420	22	11.4	12	.615	.590	-.025	256	+0	+0.000	-.025	-.679
1425	23	11.4	12	.590	.565	-.025	256	+0	+0.000	-.025	-.704
1430	24	11.4	12	.565	.540	-.025	255	-1	-.023	-.002	-.706
End Test										-.353	G.P.H.

**P-T Tank Test Data Chart
Additional Info**

1. Net Volume Change at Conclusion of Precision Test -.353 gph

Signature of Tester: AL. Sears

Date: 1-26-90

2. Statement:

Tank and product handling system has been tested tight according to the Precision Test Criteria as established by N.F.P.A. publication 329. 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 N.F.P.A. publication 329.

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. Health Consultants Incorporated does not assume any responsibility or liability for any loss of product to the environment.

Tank Owner/Operator _____

Date _____

27. Sensor Calibration 16730, 16731		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	
LOG OF TEST PROCEDURES												
28. DATE 1-26-80 TIME (24 hr)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	30. Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) * (a) = Expansion + Contraction -	38. Temperature Adjustment	39. At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)				Volume Minus Expansion (+) or Contraction (-) #33(V) - #37(T)	
4:30	ARRIVE TEST LOCATION											
	MAKE MODIFICATION TO TANK TOP FOR EQUIP.											
	CHECK FOR GROUNDWATER TABLE											
	SET UP SCAFFOLDING											
	SET UP EQUIP											
	FILL EQUIP AND BLEED AIR FROM SYSTEM											
7:45	START CIRCULATION									.0231		
	DRAW SAMPLES											
9:15	START HIGH LEVEL TEST	1		42		.800		822				
9:30		2	38.5	42	.800	.570	.230	222	+1	+0.023	-.253	
9:45		3	37.8	42	.570	.270	-.300	223	+1	+0.023	-.323	
10:00		4	37.8	42	1.000	.700	-.300	226	+3	+0.069	-.369	
10:15	BLEED AIR FROM SYSTEM	5	37.0	42	.700	.355	-.345	228	+2	+0.046	-.391	
10:30	BL	6	37.9	42	.355	.070	-.285	228	+0	+0.000	-.285	
10:45		7	38.4	42	1.000	.755	-.245	229	+1	+0.023	-.268	
11:00		8	38.5	42	.755	.520	-.235	232	+3	+0.069	-.294	
11:15		9	38.5	42	.520	.285	-.235	234	+2	+0.046	-.281	
11:30		10	39.0	42	1.000	.800	-.200	237	+3	+0.069	-.269	
11:45		11	39.0	42	.800	.600	-.200	239	+2	+0.046	-.246	
12:00		12	39.0	42	.600	.400	-.200	241	+2	+0.046	-.246	
12:02	DROP TO LOW LEVEL TEST											
12:15	PRELIM READING	13		12				245				
12:30	" "	14		12				248				
12:35	START LOW LEVEL TEST	1	11.9	12	.305	.300	-.005	249	+1	+0.023	-.028	
12:40		2	11.7	12	.300	.285	-.015	251	+2	+0.046	-.061	-.089
12:45		3	11.5	12	.285	.265	-.020	251	+0	+0.000	-.020	-.109
12:50		4	11.5	12	.265	.245	-.020	252	+1	+0.023	-.043	-.152
12:55		5	11.5	12	.245	.225	-.020	252	+0	+0.000	-.020	-.172

14. PERUMA ARSENAL
Name of Supplier, Owner or Dealer

SK. 5
Address No. and Street (a)

KEWANAWA
City

OHIO
State

1-20-10
Date of Test

15. TANK TO TEST

#11 R/R YARD
Identify by position
#2 FUEL OIL
Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY

Nominal Capacity 15,000 Gallons
By most accurate capacity chart available 15,540 Gallons

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

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up 0 to 1/4" in. 0 Gallons 126 Tank Diameter in.

	Gallons	Total Gallons as Reading
Inventory		<u>15,540</u>
<u>TOP off</u>		<u>20</u>
<u>TOTAL</u>		<u>15,560</u>
Transfer total to line 25a		

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

See manual sections applicable. Check below and record procedure in log (27).
 High water table in tank excavation

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 270.7 in.
3. Pressure at bottom of tank 4.609 P.S.I.
4. Pressure at top of tank 4.485 P.S.I.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* 247 in.
 Add 30" for "T" probe assy. 30 in.
 Total tubing to assemble - approximate 277 in.

20. EXTENSION HOSE SETTING

Tank top to grade* 121 in.
 Extend hose on suction tube 6" or more 0 in.
 below tank top

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

22. Thermal-Sensor reading after circulation 8221 digits
46/47 °F
 23. Digits per °F in range of expected change 312 digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a. Corrected A.P.I. Gravity
 Observed A.P.I. Gravity
 Hydrometer employed
 Observed Sample Temperature
 Corrected A.P.I. Gravity @ 60°F, From Table A
 Coefficient of Expansion for Involved Product From Table B
 Transfer COE to Line 25b.

21. VAPOR RECOVERY SYSTEM Stage I Stage II

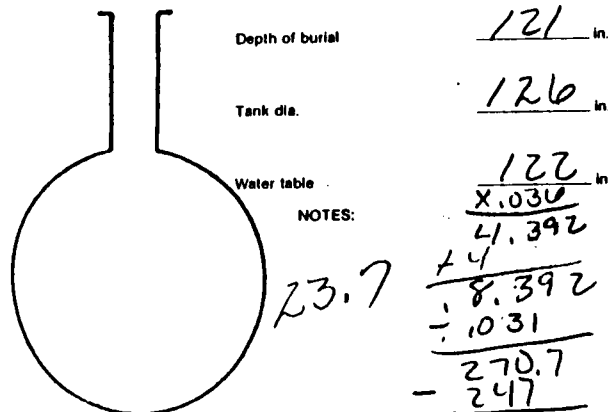
24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product #2 fuel oil
 Hydrometer Employed 4 H
 Temperature in Tank After Circulation 46.4 °F
 Temperature of Sample 41.0 °F
 Difference (+/-) -5 °F
 Observed A.P.I. Gravity 34.9

Reciprocal 2159 Page # 38
15,560 + 2159 = ? 2098193
 Total quantity in full tank (16 or 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
 Coefficient of Water Table D
 Added Surfactant? Yes No Transfer COE to Line 25b.



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.

25. (a) 15,560 x (b) 312 = (c) 4,854,720 gallons
 Total quantity in full tank (16 or 17) Coefficient of expansion for involved product Volume change in this tank per °F
 26. (a) 7,209,819.3 + (b) 312 = (c) 2,231,083 This is test factor (a)
 Volume change per °F (25 or 24b) Digits per °F in test Range (23) Volume change per digit Compute to 4 decimal places.

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property <input checked="" type="checkbox"/> Tank(s) <input checked="" type="checkbox"/>	REJUNKA ARSENAL Name Address Representative Telephone Name Address Representative Telephone																					
2. OPERATOR	SAME Name Address Telephone																					
3. REASON FOR TEST (Explain Fully)	NEW LAWS																					
4. WHO REQUESTED TEST AND WHEN	WAYNE CARLIDO ENG. Name Title Company or Affiliation Date Address Telephone																					
5. TANK INVOLVED Use additional lines for manifolded tanks	Identify by Direction #23 B. 1045	Capacity 15,000	Brand/Supplier	Grade #2 FUEL OIL	Approx. Age 41 YRS	Steel/Fiberglass STEEL																
6. INSTALLATION DATA	Location Southeast corner of Building 1045 North inside driveway, Rear of station, etc.	Cover EARTH Concrete, Black Top, Earth, etc.	Fills 4"	Vents 2"	Siphons N/A	Pumps Suction Suction, Remote. Make if known																
7. UNDERGROUND WATER	Depth to the Water table 34 is the water over the tank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																					
8. FILL-UP ARRANGEMENTS	Tanks to be filled _____ hr. _____ Date Arranged by _____ Name Telephone Extra product to "top off" and run tank tester. How and who to provide? Consider NO LEAD. Terminal or other contact for notice or inquiry _____ Company Name Telephone																					
9. CONTRACTOR, MECHANICS, any other contractor involved	_____ _____ _____																					
10. OTHER INFORMATION OR REMARKS	Suction Line disconnected for test with STATE FIRE MARSHALL 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 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: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Tank Identification</th> <th style="width: 15%;">Tight</th> <th style="width: 35%;">Leakage Indicated</th> <th style="width: 20%;">Date Tested</th> </tr> </thead> <tbody> <tr> <td>#23 B. 1045</td> <td>NO</td> <td>- .3005 G.P.H.</td> <td>1-18-90</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						Tank Identification	Tight	Leakage Indicated	Date Tested	#23 B. 1045	NO	- .3005 G.P.H.	1-18-90								
Tank Identification	Tight	Leakage Indicated	Date Tested																			
#23 B. 1045	NO	- .3005 G.P.H.	1-18-90																			
12. SENSOR CERTIFICATION 3-89 Date 2408 Serial No. of Thermal Sensor	13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329. Technicians 1. AL SEARS Certification # 122110645 2. _____ Certification # _____ ALL OHIO PETERS TEST INC. Testing Contractor or Company. By: Signature 2507 4th ST. N.W. CANTON, OHIO 44708 Address																					

1730		6	13.0	12	270	305	4,035	477	-1	7,022	7,057	
1735	START Low Level Test	1		12				476				
1740		2	11.9	12	315	310	7,005	476	+0	7,000	7,005	
1745		3	11.7	12	310	300	7,010	477	+1	7,022	7,032	7,037
1750		4	11.7	12	300	290	7,010	477	+0	7,000	7,010	7,047
1755		5	11.5	12	290	270	7,020	478	+1	7,022	7,042	7,089
1800		6	11.5	12	270	250	7,020	478	+0	7,000	7,020	7,109
1805		7	11.5	12	290	270	7,020	478	+0	7,000	7,020	7,129
1810		8	11.5	12	270	250	7,020	479	+1	7,022	7,042	7,171
1815		9	11.5	12	250	230	7,020	480	+1	7,022	7,042	7,213
1820		10	11.5	12	230	210	7,020	480	+0	7,000	7,020	7,233
1825		11	11.5	12	210	1890	7,020	480	+0	7,000	7,020	7,253
1830		12	11.5	12	1890	1870	7,022	480	+0	7,000	7,020	7,273
1835		13	11.5	12	1870	1850	7,020	481	+1	7,022	7,042	7,315
1840		14	11.5	12	1850	1830	7,020	482	+1	7,022	7,042	7,357
1845		15	11.5	12	1830	1810	7,020	482	+0	7,000	7,020	7,377
1850		16	11.5	12	1810	1790	7,020	482	+0	7,000	7,020	7,397
1855		17	11.5	12	1790	1770	7,020	481	-1	7,022	7,002	7,395
1900		18	11.5	12	1770	1750	7,020	481	+0	7,000	7,020	7,415
1905		19	11.5	12	1750	1730	7,020	482	+1	7,022	7,042	7,457
1910		20	11.5	12	1730	1710	7,020	483	+1	7,022	7,042	7,499
1915		21	11.5	12	1710	1690	7,020	483	+0	7,000	7,020	7,519
1920		22	11.5	12	1690	1670	7,020	484	+1	7,022	7,042	7,561
1925		23	11.5	12	1670	1650	7,020	484	+0	7,000	7,020	7,581
1930		24	11.5	12	1650	1630	7,020	484	+0	7,000	7,020	7,601

**P-T Tank Test Data Chart
Additional Info**

1. Net Volume Change at Conclusion of Precision Test 3005 gph

Signature of Tester: A. L. Seano

Date: 1-18-90

2. Statement:

Tank and product handling system has been tested tight according to the Precision Test Criteria as established by N.F.P.A. publication 329. 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 N.F.P.A. publication 329.

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. Heath Consultants Incorporated does not assume any responsibility or liability for any loss of product to the environment.

Tank Owner/Operator _____

Date _____

14. REVENUE ARSENAL

S.R. 5

REVELLA

OKD

1-18-70

Name of Supplier, Owner or Dealer

Address No and Street(s)

City

State

Date of Test

15. TANK TO TEST

#23 B, 1043
Identity by position

#2 fuel oil
Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY

Nominal Capacity 15000 Gallons

By most accurate capacity chart available 15,546 Gallons

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

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up 2 1/4 in. to 1/4" in. 62 Gallons Tank Diameter 126 in.

	Gallons	Total Gallons ea. Reading
Inventory	126	15,546
Topoff		+ 20
WATER		- 62
TOTAL		15504

Transfer total to line 25a

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK

- Water in tank ED 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 270.7 in.
- 3. Pressure at bottom of tank 4.609 P.S.I.
- 4. Pressure at top of tank 4.483 P.S.I.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* 156 in.
Add 30" for "T" probeassy. 30 in.
Total tubing to assemble - approximate 186 in.

20. EXTENSION HOSE SETTING

Tank top to grade* 32 1/2 in.
Extend hose on suction tube 8" or more below tank top 10 in.

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

22. Thermal-Sensor reading after circulation 74.50
49.45 F

23. Digits per *F in range of expected change 320 digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a. Corrected A.P.I. Gravity
Observed A.P.I. Gravity
Hydrometer employed
Observed Sample Temperature
Corrected A.P.I. Gravity @ 60°F. From Table A

Coefficient of Expansion for Involved Product From Table B
Transfer COE to Line 25b.

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 44.0 °F
After Circulation 43 °F
Temperature of Sample -1 °F
Difference (+/-) 34.0 °F
Observed A.P.I. Gravity

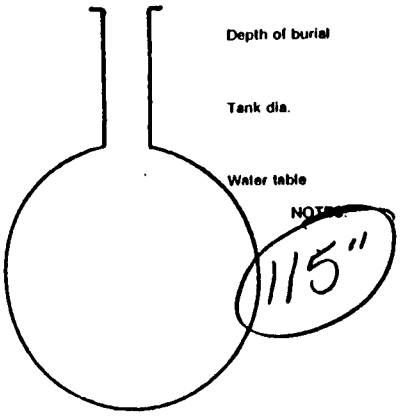
Reciprocal 2179 Page # 38
15,504 * 2179 = 7,115,190.4
Total quantity in full tank (16 or 17) Reciprocal Volume change in this tank per °F
Transfer to Line 26a.

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

Water Temperature after Circulation Table C

Coefficient of Water Table D

Added Surfactant? Yes No Transfer COE to Line 25b.



Water table 122 in.
NOTED
115"
Handwritten calculations:
x .036
4.392
+ 4.000
8.392
- .031
270.7
- 136
114.7

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.

25. (a) Total quantity in full tank (16 or 17) × (b) Coefficient of expansion for involved product = (c) Volume change in this tank per °F

26. (a) 7,115,190.4 Volume change per °F (25 or 24b) + (b) 320 Digits per °F in test Range (23) = (c) 2,022,349 Volume change per digit Compute to 4 decimal places. This is test factor (e)

27. Sensor Calibration 16730 16732		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	
LOG OF TEST PROCEDURES												
28. DATE 1-18-90 TIME (24 hr.)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	30. Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-)	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(I)	At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)					
815	ARRIVE TEST LOCATION STICK TANK FOR BURIAL DEPTH AND WATER											
	WAIT FOR TANK TO BE TOPPED OFF											
1030	SETUP SCAFFOLDING											
	SETUP 2 SETS OF EQUIP											
	FILL EQUIP AND BLEED AIR FROM SYSTEM											
1130	START CIRCULATION									1.0222		
1229	TAKE SAMPLE											
1230	START HIGH LEVEL TEST	1		42		.720		7450				
1245		2	39.2	42	.720	.620	-1.00	450	+0	+1.000	-1.00	
1300		3	37.9	42	.620	.470	-1.50	451	+1	+1.022	-1.72	
1315	BLEED AIR FROM SYSTEM	4	37.5	42	.470	.290	-1.80	451	+0	+1.000	-1.80	
1330		5	37.5	42	1.000	.820	-1.80	451	+0	+1.000	-1.80	
1345		6	37.7	42	.820	.660	-1.60	452	+1	+1.022	-1.82	
1400		7	37.7	42	.660	.500	-1.60	453	+1	+1.022	-1.82	
1415		8	38.0	42	.500	.350	-1.50	455	+2	+1.044	-1.94	
1430		9	38.0	42	.350	.200	-1.50	458	+3	+1.067	-2.17	
1445		10	38.0	42	.200	.050	-1.50	460	+2	+1.044	-1.94	
1500		11	38.0	42	.610	.460	-1.50	463	+3	+1.067	-2.17	
1515		12	38.0	42	.460	.310	-1.50	464	+1	+1.022	-1.72	
1517	DROP TO LOW LEVEL TEST											
	RE BLEED MANWAY											
	LEFT CIRCULATING MOTORS RUNNING											
1600	RE RUN 1 HOUR HIGH LEVEL READINGS											
1615		1		42		.725		7470				
1630		2	38.3	42	.725	.590	-1.35	472	+2	+1.044	-1.79	
1645		3	38.3	42	.590	.455	-1.35	476	+4	+1.089	-2.24	
1700		4	38.3	42	.455	.320	-1.35	478	+2	+1.044	-1.79	
1702	DROP TO LOW LEVEL TEST											
1715		5	15.2	12	.600	.760	+1.60	478	+0	+1.000	+1.60	

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER	Property <input checked="" type="checkbox"/> Tank(s) <input checked="" type="checkbox"/>	REYNOLDS ARSENAL					
		Name	Address	Representative	Telephone		
		Name	Address	Representative	Telephone		
2. OPERATOR	NONE						
		Name	Address	Representative	Telephone		
		Name	Address	Representative	Telephone		
3. REASON FOR TEST (Explain Fully)	LEAKS						
4. WHO REQUESTED TEST AND WHEN	WELLS CONTRACTING INC.						
		Name	Title	Company or Affiliation	Date		
		Name	Title	Company or Affiliation	Date		
		Address			Telephone		
		Address			Telephone		
5. TANK INVOLVED Use additional lines for manifolded tanks	Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass	
		#33 DEAC FURNACE	2000		#2 FUEL OIL	STEEL	
6. INSTALLATION DATA	Location	Cover	Fills	Vents	Siphones	Pumps	
		EAST SIDE OF BURN JAIL	EARTH	3"	2"	N/A	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
		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 <u>69</u>						
					Is the water over the tank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
8. FILL-UP ARRANGEMENTS	Tanks to be filled _____ hr. _____ Date Arranged by _____ Name _____ Telephone _____						
		Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.					
		Terminal or other contact for notice or inquiry _____ Company _____ Name _____ Telephone _____					
		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 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		
		#33 DEAC FURNACE	NO	7.0825 G.P.H.	1-15-90		
12. SENSOR CERTIFICATION 3-89 Date 2458 Serial No. of Thermal Sensor	13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.						
		Technicians 1. <u>A.L. SEARS</u>		<u>ALL OHIO PETRO TEST INC.</u> Testing Contractor or Company. By: Signature			
		Certification # <u>122110645</u>		<u>2507 4TH ST. CANTON, OHIO</u> Address			
		2. _____		<u>44708</u>			
		Certification # _____					

15. TANK TO TEST
33 DEAC FURNACE
 Identity by position
#2 Fuel oil
 Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY
 Nominal Capacity 2000 Gallons
 By most accurate capacity chart available 2005 Gallons

From
 Station Chart
 Tank Manufacturer's Chart
 Company Engineering Data
 Charts supplied with PETRO-TITE Equip
 Other SLIDE CHART

17. FILL-UP FOR TEST
 Slick Water Bottom before Fill-up 1/8 in. to 1/4"
 Gallons 1
 Tank Diameter 64 in.
 Inventory 64"

	Gallons	Total Gallons ea. Reading
<u>20 Puff</u>		<u>2005</u>
<u>WATER</u>		<u>+ 5</u>
<u>TOTAL</u>		<u>2009</u>
Transfer total to line 25a		

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK
 Water in tank Line(s) being tested with LVLTT
NO 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:

- Is four pound rule required? Yes No
- Height to 12" mark from bottom of tank 100 in.
- Pressure at bottom of tank 3,100 P.S.I.
- Pressure at top of tank 1,116 P.S.I.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY
 Bottom of tank to grade* 69 in.
 Add 30" for "T" probe assy. 30 in.
 Total tubing to assemble - approximate 99 in.

20. EXTENSION HOSE SETTING
 Tank top to grade* 6 in.
 Extend hose on suction tube 8" or more below tank top 20 in.
 *If fill pipe extends above grade, use top of fill.

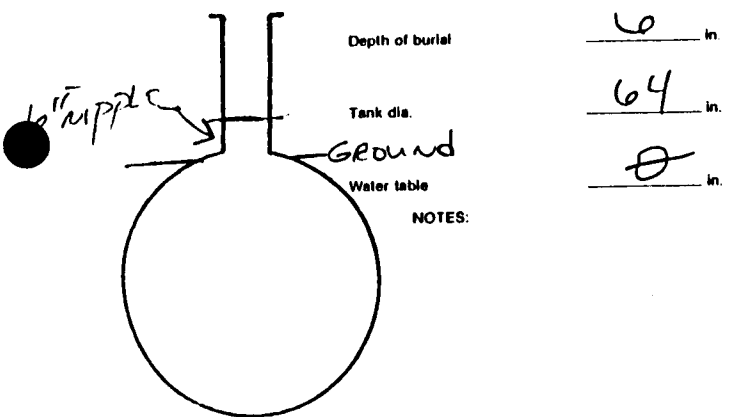
22. Thermal-Sensor reading after circulation 4912 digits
34/35 °F
 Between 284 digits
 23. Digits per °F in range of expected change

COEFFICIENT OF EXPANSION (Complete after circulation)
 24a. Corrected A.P.I. Gravity
 Observed A.P.I. Gravity _____
 Hydrometer employed _____ H
 Observed Sample Temperature _____ °F
 Corrected A.P.I. Gravity @ 60°F. From Table A _____
 Coefficient of Expansion for Involved Product From Table B _____
 Transfer COE to Line 25b.

21. VAPOR RECOVERY SYSTEM Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD
 Type of Product #2 Fuel oil
 Hydrometer Employed 4 H
 Temperature in Tank After Circulation 34.2 °F
 Temperature of Sample 37 °F
 Difference (+/-) +3 °F
 Observed A.P.I. Gravity 34.4
 Reciprocal 2178 Page # 38
2009 + 2178 = 19224058
 Total quantity in full tank (16 or 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 _____ °F
 Coefficient of Water Table D _____
 Added Surfactant? Yes No Transfer COE to Line 25b.



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.

25. (a) _____ × (b) _____ = (c) _____ gallons
 Total quantity in full tank (16 or 17) Coefficient of expansion for involved product Volume change in this tank per °F

26. (a) 19224058 + 288 = 10032027 This is
 Volume change per °F (25 or 24b) Digits per °F in test Range (23) Volume change per digit Compute to 4 decimal places. test factor (a)

27. Sensor Calibration 16730, 16732		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		
LOG OF TEST PROCEDURES												
28. DATE 4-15-90 TIME (24 hr.)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	30. Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) x (a) = Expansion + Contraction -	Temperature Adjustment Volume Minus Expansion (+) or Contraction (-) #33(V) - #37(I)	39. At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)					
740	ARRIVE TEST SITE WAIT FOR PERSON TO UNLOCK AREA TO TANK TO DETESTED WAIT FOR MAINT. TO COME TURN ON ELECT. REMOVE 4" BUSHING FROM TANK CLEAN AND PEELOPE REINSTALLED											
1130	START CIRCULATION											
1200	START HIGH LEVEL TEST	1		42		.245		4412				
1215		2	43.1	42	.245	.295	+0.050	438	+26	+0.083	+0.033	
1230	TIGHTEN 4" BUSHING	3	43.1	42	.295	.340	+0.045	464	+26	+0.083	+0.038	
1245		4	43.1	42	.340	.390	+0.050	490	+26	+0.083	+0.033	
1300		5	43.1	42	.390	.440	+0.050	516	+26	+0.083	+0.033	
1315		6	42.9	42	.440	.475	+0.035	543	+27	+0.086	+0.031	
1317	DROP TO LOW LEVEL TEST											
1330		7	13.7	12	.475	.540	+0.065	567	+24	+0.077	+0.012	
1345		8	13.2	12	.540	.580	+0.040	590	+23	+0.074	+0.034	
1350		1	12.5	12	.580	.600	+0.020	597	+7	+0.022	+0.002	
1355		2	12.5	12	.600	.620	+0.020	604	+7	+0.022	+0.002	+0.004
1400		3	12.5	12	.620	.640	+0.020	613	+9	+0.029	+0.009	+0.013
1405		4	12.5	12	.640	.660	+0.020	620	+7	+0.022	+0.002	+0.015
1410		5	12.5	12	.660	.680	+0.020	628	+8	+0.026	+0.006	+0.021
1415		6	12.5	12	.680	.700	+0.020	637	+9	+0.029	+0.009	+0.030
1420		7	12.5	12	.700	.720	+0.020	647	+10	+0.032	+0.012	+0.042
1425		8	12.5	12	.720	.740	+0.020	656	+9	+0.029	+0.009	+0.051
1430		9	12.5	12	.740	.760	+0.020	663	+7	+0.022	+0.002	+0.053
1435		10	12.5	12	.760	.780	+0.020	672	+9	+0.029	+0.009	+0.057
1440		11	12.5	12	.780	.800	+0.020	679	+7	+0.022	+0.002	+0.059

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property <input checked="" type="checkbox"/> Tank(s) <input checked="" type="checkbox"/>	REFINNA ARSENAL Name Address Representative Telephone Name Address Representative Telephone																					
2. OPERATOR	SAME Name Address Telephone																					
3. REASON FOR TEST (Explain Fully)	RETEST AFTER DISCONNECTING COOPER LINE																					
4. WHO REQUESTED TEST AND WHEN	WAYNE CARLSON Name Title		SAME Company or Affiliation		1-15-90 Date																	
5. TANK INVOLVED Use additional lines for manifolded tanks	Identify by Direction #33 DEAC. FURNACE	Capacity 2000	Brand/Supplier	Grade #2 FUEL OIL	Approx. Age	Steel/Fiberglass STEEL																
6. INSTALLATION DATA	Location EAST SIDE OF BURN UNIT	Cover EARTH	Fills 8"	Vents 2"	Siphones N/A	Pumps DISCONNECTED																
7. UNDERGROUND WATER	Depth to the Water table <u>6 FT</u>				Is the water over the tank? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																	
8. FILL-UP ARRANGEMENTS	Tanks to be filled _____ hr. _____ Date Arranged by _____ Name Telephone Extra product to "top off" and run tank tester. How and who to provide? Consider NO LEAD. Terminal or other contact for notice or inquiry _____ Company Name Telephone																					
9. CONTRACTOR, MECHANICS, any other contractor involved	_____ _____ _____																					
10. OTHER INFORMATION OR REMARKS	DISCONNECTED PRODUCT LINE TEST TANK ONLY 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 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: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Tank Identification</th> <th style="width: 15%;">Tight</th> <th style="width: 35%;">Leakage Indicated</th> <th style="width: 20%;">Date Tested</th> </tr> </thead> <tbody> <tr> <td>#33 DEAC FURNACE</td> <td>NO</td> <td>- .065 G.P.H.</td> <td>1-15-90</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						Tank Identification	Tight	Leakage Indicated	Date Tested	#33 DEAC FURNACE	NO	- .065 G.P.H.	1-15-90								
Tank Identification	Tight	Leakage Indicated	Date Tested																			
#33 DEAC FURNACE	NO	- .065 G.P.H.	1-15-90																			
12. SENSOR CERTIFICATION 3-89 Date 2428 Serial No. of Thermal Sensor	13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 328. Technicians 1. AL SCARS Certification # 122110645 2. _____ Certification # _____ ALL OHIO PETRO TEST INC. Testing Contractor or Company. By: Signature 2507 4TH ST. N.W. CANTON, OHIO 44708 Address																					

15. TANK TO TEST
#33 DEX FURNACE
 Identity by position
#2 FUEL OIL
 Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY
 Nominal Capacity 2000 Gallons
 By most accurate capacity chart available 2005 Gallons

From
 Station Chart
 Tank Manufacturer's Chart
 Company Engineering Data
 Charts supplied with PROTITEQUIP
 Other SLIDE CHART

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up 1/8' in. Gallons 1 Tank Diameter 64 in. Inventory 64

Gallons	Total Gallons ea. Reading
<u>64</u>	<u>2005</u>
<u>Tot off</u>	<u>+ 3</u>
<u>Water</u>	<u>- 1</u>
<u>TOTAL</u>	<u>2007</u>

Transfer total to line 25a

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK Water in tank NO (Line(s) being tested with LVLTT

See manual sections applicable. Check below and record procedure in log (27). NO High water table in tank excavation

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 100 in.
3. Pressure at bottom of tank 3,100 P.S.I.
4. Pressure at top of tank 1,116 P.S.I.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY
 Bottom of tank to grade* 69 in.
 Add 30" for "T" probe assy. 30 in.
 Total tubing to assemble - approximate 99 in.

20. EXTENSION HOSE SETTING
 Tank top to grade* 4 in.
 Extend hose on suction tube 6" or more below tank top 20 in.

*If Fill pipe extends above grade, use top of fill.
 22. Thermal-Sensor reading after circulation 48.31 ^{digits}
39/36 °F
 Between 292 ^{digits}

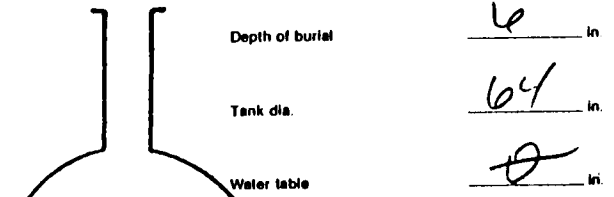
23. Digits per °F in range of expected change 292 digits

COEFFICIENT OF EXPANSION (Complete after circulation)
 24a. Corrected A.P.I. Gravity
 Observed A.P.I. Gravity _____
 Hydrometer employed _____ H
 Observed Sample Temperature _____ °F
 Corrected A.P.I. Gravity @ 60°F. From Table A _____
 Coefficient of Expansion for Involved Product From Table B _____
 Transfer COE to Line 25b.

21. VAPOR RECOVERY SYSTEM Stage I Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD
 Type of Product #2 Fuel Oil
 Hydrometer Employed 3 H
 Temperature in Tank After Circulation 35.6 °F
 Temperature of Sample 39 °F
 Difference (+/-) +3 °F
 Observed A.P.I. Gravity 34.5
 Reciprocal 2176 Page # 38
2007 + 2176 = 9223345
 Total quantity in full tank (16 or 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 _____ °F
 Coefficient of Water Table D _____
 Added Surfactant? Yes No Transfer COE to Line 25b.



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.

25. (a) _____ x (b) _____ = (c) _____ gallons
 Total quantity in full tank (16 or 17) Coefficient of expansion for involved product Volume change in this tank per °F

26. (a) 9223345 + (b) 292 = (c) 1,003,586 (10032)
 Volume change per °F (25 or 24b) Digits per °F in test Range (23) Volume change per digit Compute to 4 decimal places. This is test factor (a)

27. Sensor Calibration / 16730 / 16731		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	
LOG OF TEST PROCEDURES												
28. DATE	Record details of setting up and running test. (Use full length of line if needed)	29. Reading No.	32. Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) * (a) = Expansion + Contraction -	38. Temperature Adjustment	39. At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)				Volume Minus Expansion (+) or Contraction (-) #33(V) - #37(T)	
	Disconnect Copper product Line Plug off To Retest Tank Only											
	FILLequip BleedAIR from SYSTEM									.0032		
1630	RESTART CIRCULATION											
1645	START High LEVEL TEST	1		42		.540						
1700		2	42.7	42	.510	.570	+0.030	857	+26	+0.083	-0.048	
1715		3	42.6	42	.570	.595	+0.025	868	+11	+0.035	-0.010	
1730	CHANGE JET TUBE DIRECTION	4	42.6	42	.595	.620	+0.025	884	+16	+0.051	-0.026	
1745		5	42.4	42	.620	.640	+0.020	902	+18	+0.058	-0.038	
1800		6	42.4	42	.640	.660	+0.020	917	+15	+0.048	-0.028	
1802	DRW TO LOW LEVEL TEST											
1815		7	13.6	12	.660	.730	+0.070	929	+12	+0.038	+0.032	
1830		8	13.0	12	.095	.135	+0.040	942	+13	+0.042	-0.002	
1835	START LOW LEVEL TEST	1	12.3	12	.135	.150	+0.015	948	+6	+0.019	-0.004	
1840		2	12.2	12	.150	.160	+0.010	951	+3	+0.010	+0.000	-0.004
1845		3	12.2	12	.160	.170	+0.010	955	+4	+0.013	-0.003	-0.002
1850		4	12.2	12	.170	.180	+0.010	960	+5	+0.016	-0.006	-0.013
1855		5	12.2	12	.180	.190	+0.010	965	+5	+0.016	-0.006	-0.019
1900		6	12.2	12	.190	.200	+0.010	970	+5	+0.016	-0.006	-0.025
1905		7	12.2	12	.200	.210	+0.010	974	+4	+0.013	-0.003	-0.028
1910		8	12.2	12	.210	.220	+0.010	981	+7	+0.022	-0.012	-0.040
1915		9	12.2	12	.220	.230	+0.010	986	+5	+0.016	-0.006	-0.046
1920		10	12.2	12	.230	.240	+0.010	989	+3	+0.010	+0.000	-0.046
1925		11	12.2	12	.240	.250	+0.010	993	+4	+0.013	-0.003	-0.049
1930		12	12.2	12	.250	.260	+0.010	998	+5	+0.016	-0.006	-0.055
1935		13	12.2	12	.260	.270	+0.010	003	+5	+0.016	-0.006	-0.061