65000-80-051

Internal Letter

Rockwell International

Date: March 24, 1980

No: 65000-80-051

File — pressure test folder (new ??)

TO: (Name, Organization, Internal Address)
· Distribution
·
·

FROM: (Name, Organization, Internal Address, Phone)
· J. H. Roecker, Director
· Research & Engineering
· 2750-E/200-East
· 942-2059

Subject: · Pressure Testing Of Waste Transfer Lines

References: (a) ARH-CD-237 (unclassified), January 22, 1975, D. N. Morrill, "Standards For Hydrostatic Testing Of Existing Direct-Buried Waste Lanes"

(b) ANSI Standard B31.1, Dated 1977

Future pressure testing of direct buried waste transfer lines will be conducted in accordance with reference a and b at a pressure of at least 1.5 times the maximum operating pressure for the lines involved. The pressures for specific transfer line types varies, as follows:

Slurry lines	550 psig
Supernatant lines	250 psig
Cross-site lines	300 psig
Jet pump transfer lines	135-250 psig

J. H. Roecker, Director
Research & Engineering

JHR/JWB/ljo

Concurrence:
Director, Health, Safety and Environment

Distribution:

D. C. Bartholomew
G. T. Dukelow
J. H. Garbrick
R. D. Hammond
G. A. Huff
J. D. Keck
B. E. Knight
P. G. Lorenzini
C. A. Peterson
R. D. Prosser
J. H. Roecker
H. P. Shaw
D. J. Washenfelder
G. R. Wilson
R. A. Zinsli

cc: J. W. Bailey
B. P. Carl
O. C. Mudd
O. S. Strunk
T. B. Veneziano
H. L. Winters

b. The test pressures as follows:

- Direct buried supernatant lines which contain flex jumpers and/or 150 lb flanges are tested between 185 - 205 psig.
- Direct buried supernatant lines which contain rigid jumpers and/or piping only are tested between 370 - 380 psig.
- Saltwell jet pumping lines which contain flex jumpers and/or 150 lb flanges are tested between 185 - 205 psig.
- Saltwell jet pumping lines which contain rigid jumpers and/or piping only are tested between 185 - 205 psig.

c. The test time is found by using Table 2. Use the length of pipeline to match a test time.

d. The serial number, calibration data and range of the pressure check gauge(s).

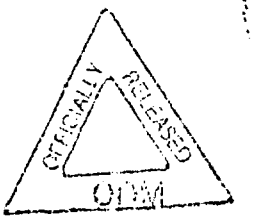
e. The serial number, calibration data and psi setting of the pressure relief valve, or pressure rating of the rupture disc.

7. A data sheet will be maintained for each pressure check, regardless of the outcome of the check.

8. TFS&O supervision will notify the Quality Control (QC) inspection department (3-2115) as early as possible in advance of the pressure test.

9. Attach pressure checking apparatus to the appropriate nozzles.

10. Attach the 150 cfm exhauster or HEPA filter box unit to the adapter line from the rupture disk/PRV drain line and valve #1 drain line. Verify the pressure test apparatus confirms to Figure 1 and check for tightness.



B. Pressure Testing

NOTE: Do not start the portable exhauster at any time during the procedure.

NOTE: Portable exhauster or HEPA filter box unit must have current DOP test tag.

1. Close valve #1.

2. Open valve #2 and open the butterfly valve if using the 150 cfm exhauster.

3. Start the pressure cycle; build up pressure to 22 psig ±2 psig with the compressor while observing at both ends the transfer line and any cleanout boxes (COB's) associated with the transfer line for leaks. Soap bubble test all fittings, valves and unions which are within reach. If leaks are detected, bleed off the pressure through valve #1 and repair the leaks.

4. When all leaks have been repaired, raise pressure slowly (<60 psig/min) with the compressor to test pressures stated in Section IV, Step A, Part 6.b.

5. When check pressure is reached, valve out the transfer line from the compressor by closing valve #2.

   a. Record the time for each pressure reading recorded.

   b. Record the starting pressure, the pressure 10 minutes later and the pressure every 30 minutes until the test is completed.

6. If the pressure on the transfer line does not hold, double-check the pressure check equipment and the connector heads for leaks by soap bubble test method. If any leaks are found, bleed off the pressure through valve #1, correct the leak(s) and restart the pressure check. This may be repeated as many times as necessary as determined by TFS&O supervision.

7. Criteria for pressure testing:

   a. Pipe with no valves - 0% pressure drop for time specified in Table 2.

   b. Pipe with valves - 5% pressure drop for time specified in Table 2 (time durations start when test pressure initially becomes stable).

8. For a pressure drop of greater than indicated above in one-half hour, notify TFS&O that the transfer line integrity is suspect and the line is not be used pending resolution of the pressure loss.

9. For a pressure rise of greater than 5%, notify Tank Farm & Evaporator Process Control (TF&EPC) for resolution of the problem.

10. When the pressure test is complete slowly open valve #1 to relieve the pressure into the 150 cfm exhauster or HEPA filter box unit.

11. Supervisor must sign one of the two lines on the data sheet to indicate that the transfer line is or is not approved for future use.

12. Restart the pipe heat trace and record initials, date and time on the data sheet.

C. Data Sheet Transmittal

The original Pressure Test Data Sheets are to be forwarded to the TFS&O offices and in turn to the TF&EPC offices by the regular work day following the completion of the pressure test.

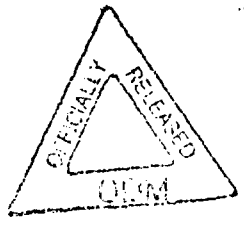
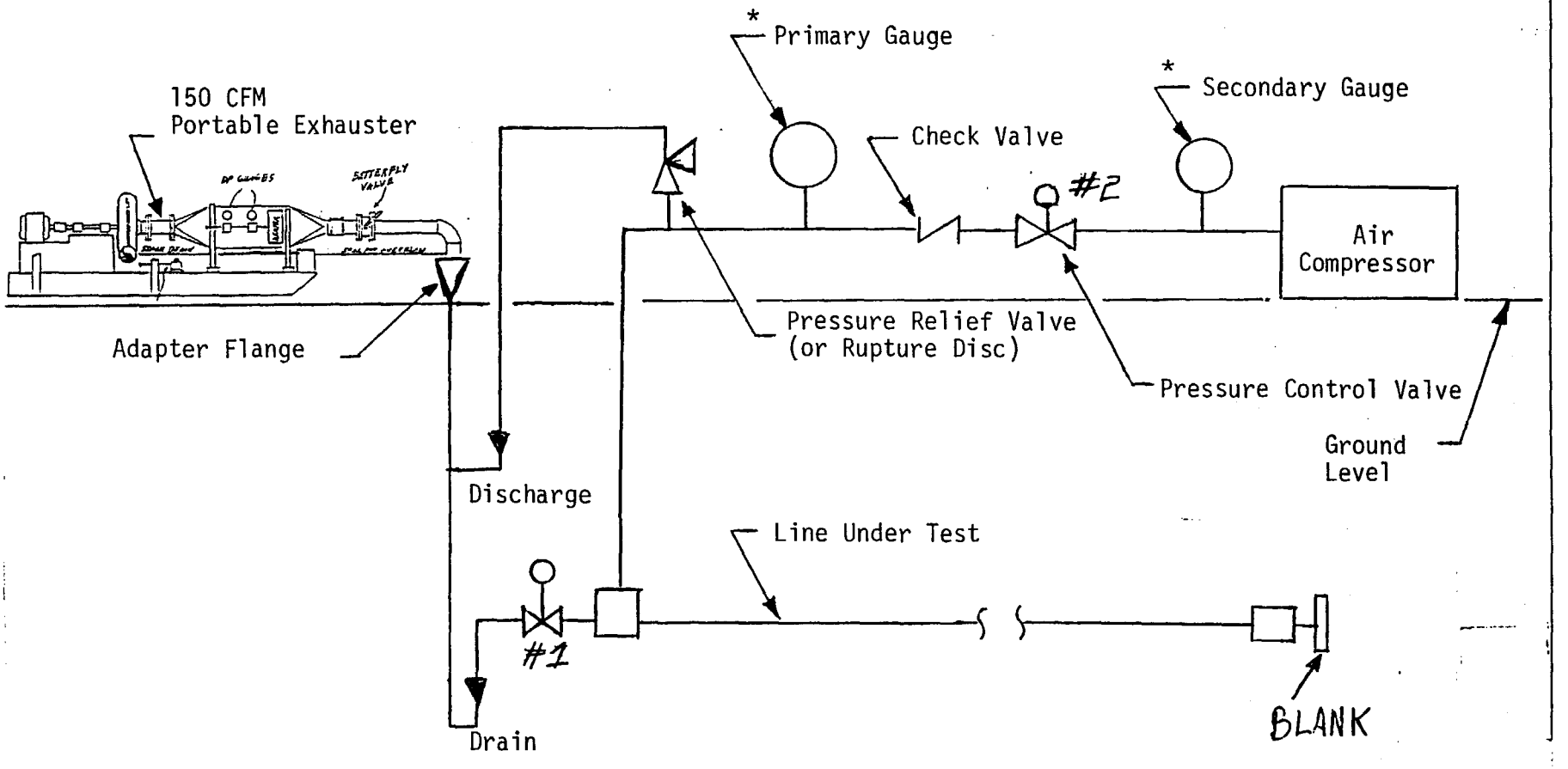


FIGURE 1



TEST EQUIPMENT ARRANGEMENT

*Gauge must be visible to operator at all times

NOTE: (1) Each gauge must bear a sticker to indicate that it has been properly calibrated.

(2) The maximum reading of the primary pressure gauge shall be no less than 150% and no more than 400% of the minimum recommended test pressure (i.e. for a 100 psig test, the maximum readings on the gauge must be 150 to 400 psig, inclusive).

(3) Pressure relief valve or rupture disc must be set to operate at 110 to 125% of test pressure.

TABLE 1

At least 24 hours before pressure checking any pipeline listed on the left side, turn off the heat traces for that pipeline and all others on the same line of the chart.

WEST AREA

U-Farm

100, 101, 208, 216	207, 213, 215
102, 103, 202, 203	204, 205
104, 105, 107, 204, 205	102, 202
106	108
109, 111, 210, 211, 212	112, 210, 212
110	112, 210, 212
112	110, 212
138, 139	
200, 201	

S, SX Farms

113, 201, 234, 235	114, 200
114, 200	113, 201, 234, 235, 213, 214
115, 215	122, 219, 220, 222
116, 216	221
117, 217	128, 223, 224, 225, 228
118, 218	226, 227
119, 120	122, 219, 220, 222
121	116, 221
122	115, 116, 215, 216, 221
123, 124, 125	223, 224, 225, 228
126 127	226, 227
128	117, 118, 218, 223, 224, 225 226, 227, 228
129, 130, 131	132, 229, 230, 231, 232

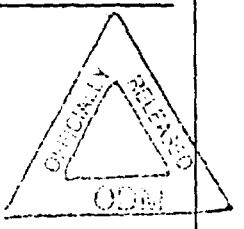


TABLE 1 (CONTINUED)

S, SX Farms (Continued)

132	133, 137, 230, 231, 232, 233, 241
133, 137	233, 241
219, 220, 222	115, 215, 221
221	116, 121, 215, 216, 219, 220, 222
229, 230, 231, 232	129, 130, 131, 233, 241
233, 241	132, 133, 137, 229, 231, 232
226, 227	126, 127, 223, 224, 225, 228
223, 224, 225, 228	123, 124, 125, 128, 226, 227
334, 335	

TX-TY Farms

F.R. 704, 728	

EAST AREA

A-AX Farms

100	101, 102, 103, 105, 106, 200, 201, 202, 203, 205, 213, 214
101	100, 103, 200, 201, 203, 207
103	100, 101, 106, 107, 200, 201, 203, 207, 213, 214
102, 105, 202, 205	101, 106, 213, 214, 234, 235, 334, 335
106	100, 101, 103, 202, 203, 205, 213, 214
107	207
108, 111	208, 211
109, 112	209, 212
113	213, 219, 220, 234, 235
114	214, 219, 220, 234, 235
200, 201	100, 101, 103, 203
203	100, 101, 103, 106, 200, 201, 207, 213, 214

TABLE 1 (CONTINUED)

A, AX Farms (Continued)

207	101, 103, 107, 203, 213, 214
208, 211	108, 111, 209, 212
209, 212	109, 112, 208, 211
213	100, 101, 103, 106, 113, 202, 203, 205, 214, 219
214	100, 101, 103, 106, 114, 203, 207, 213, 220
334, 335	102, 105, 202, 205, 234, 235

B, BX, BY Farms

800, 801	802, 803, 812
802	800, 801, 803, 808, 814
803	800, 801, 804
804	803
806	807, 813, 822
807	806, 808, 809, 822
808	802, 807, 809, 814
809	802, 807, 808, 810, 814
810	809
812	800, 801
813	806
814	802, 809
815	816
816	815, 817, 818
817	816, 818
818	816, 817, 819
819	818, 820
820	819
821	820

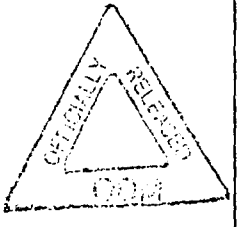


TABLE 1 (CONTINUED)

B, BX, BY Farms (Continued)

822	823, 824, 829
823	822, 824
824	822, 823, 826
825	824, 827
826	824, 825
827	825

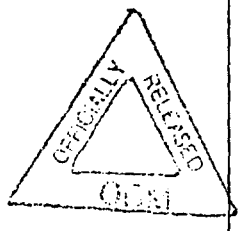
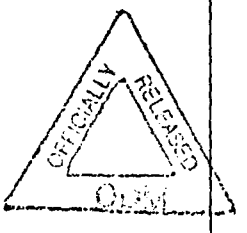


TABLE 2

LINE LENGTH VS TEST TIME FOR PNEUMATIC PRESSURE TEST

Line Length (ft)	Test Time
100	30 min.
500	60 min.
1000	120 min.
1500	175 min.
2000	200 min.
2500	255 min.



DATA SHEET

PNEUMATIC PRESSURE TEST OF TRANSFER LINES

TF&EPC Signature: _____

Heat Trace Power Off: Date _____ Time _____ Pump _____

Pumps locked out and tagged: Date _____ Time _____ Pump _____

Supervisor's Signature: _____ Date _____

Transfer Line No.: _____ Length of pipeline: _____

Low Elevation Nozzle _____ Box/Pit _____

High Elevation Nozzle _____ Box/Pit _____

Specified Check Pressure _____psig/Specified Check Time _____

Pressure Check Gauge Serial No.: _____

Calibration Date: _____

Range: _____

Pressure Relief Valve Serial No.: _____
(or Burst Disk)

Calibration Date: _____

psi Setting/
Burst Setting: _____

Time	Pressure (psig)	Date	Time	Pressure	Date

SIGN ONE

Transfer line approved for use: _____
Supervisor

Pressure test failed. Required notifications made: _____
Supervisor

Heat Trace Power On: Date _____ Time _____ Initials _____