

**Appendix B**

Pipeline Installation and Testing Records

Pipeline Rupture and Fire  
Bellingham, Washington  
June 10, 1999  
DCA-99-MP-008

OLYMPIC PIPE LINE COMPANY

1965 Specifications as found on Pipe line sheets S-100-7

|          |                               |         |            |
|----------|-------------------------------|---------|------------|
| API pipe | 5LX-52                        |         | Same       |
|          | ERW                           |         | Same       |
|          | 16" O.D.                      |         | Same       |
|          | .312" W.T.                    |         | Same       |
| Man.     | Lone Star Steel               | Reroute | U.S. Steel |
|          | 52.36 # per ft.               |         | Same       |
| Coating  | C.T. Primer                   |         | Same       |
|          | C.T. Enamel                   |         | Same       |
|          | .018" Fib. Gl. Wrap           |         | Same       |
|          | C.T. Enamel                   |         | Same       |
|          | 15 # Perforated Asbestos Felt |         | Same       |
|          | 1 coat white wash solution    |         | Same       |

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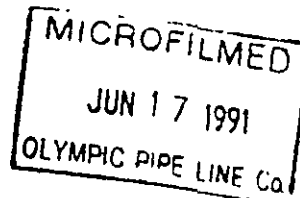
Ref: Hydrostatic test OL-8

This test was performed in accordance with procedures in effect prior to the D.O.T. safety regulations in part 195 of Docket No. HM-6 taking effect. All pipe was tested for 24 hours at 110% of the maximum operating pressure.

*@ LAKE SAMISH*

This segment was tested to 1713 psi, which is 110% of 1557 psi. This is above the maximum operating pressure for ANSI series 600 fittings and therefore the maximum allowable operating pressure of this segment will be 1440 psi.

J.W. Sage  
OPL Engineer



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OLYMPIC PIPE LINE COMPANY  
P. O. BOX 236, RENTON, WASHINGTON 98055

HYDROSTATIC PRESSURE TEST

OL-8

FERNDALE TO RENTON 16" M.L.  
FERNDALE STATION TO ALLEN STATION

2/26/65

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OLYMPIC PIPE LINE CO.

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OLYMPIC PIPE LINE COMPANY

MAIN LINE HYDROSTATIC TEST

*FERRIS ST. TO ALFA ST.*

Test Date 2-11-57

SECTION OF LINE

|  |   |
|--|---|
| Survey Station                                   | From <u>0+00</u>                              |
|  | To <u>197+00</u>                              |
| Mile Post  | From <u>0</u>                                 |
|  | To <u>37.3</u>                                |
| Test Pressure Upstream end                       | <u>1727</u>                                   |
| Test Pressure Intermediate Point (If Applicable) | <u>1713</u>                                   |
| Test Pressure Downstream end                     | <u>1815</u>                                   |
| Average Ambient Temperature                      | Start Test <u>41</u> °F End Test <u>41</u> °F |
| Time: Test Began                                 | <u>10:30 PM 2/11/57</u>                       |
| Time: Test Ended                                 | <u>10:30 PM 2/11/57</u>                       |

This is to certify that the above section of pipe line was filled with fresh water and hydrostatically tested to the gauge pressures listed above; pressures were maintained for a minimum of 24 hours.

Certified by: F. L. Tucker  
P.H.F. Linn Company

Test Conducted by: J. Smith

Michael J. Smith  
Test Witnessed by:  
Olympic Pipe Line Company  
OLYMPIC PIPE LINE CO.

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# Olympic Pipe Line Company

P.O. BOX 733 - BELLEVUE, WASHINGTON 98004

March 9, 1965

D. R. Ford  
Bellevue, Washington

RE: HYDROSTATIC TESTS  
FERNDALE TO ALLEN  
AND ALLEN TO ANACORTES

The hydrostatic test was conducted on 190,194' (Ferndale Station to Allen Station) and 44,600' (Allen Station to Anacortes Station) of 16" main line by R. H. Fulton Contractor. Listed below is a detailed breakdown of the operation.

## Thursday, February 13, 1965:

3:00 a.m. - Started running pipe line scraper and filling pipe line with fresh water. Pumping water from Samish Lake pushing two scrapers, one toward Ferndale Station and one toward Allen Station at 1700 bbls. per hour.

9:30 a.m. - Noticed hole in line about half way up steep hill on north side of Samish Lake, Station 1102+00 Map S-100-9. After inspection of hole, it was determined that the hole was knocked in line by a bull dozer while building a road on the side of the hill.

7:00 p.m. - Completed repairs and again started pumping water.

## Friday, February 19, 1965:

4:30 a.m. - Scraper came in the trap at Allen Station.

## Saturday, February 20, 1965:

1:30 a.m. - Scraper came in the trap at Ferndale Station.

2:00 a.m. - Started running scraper and filling line with water from Allen Station to Anacortes Station.

7:00 a.m. - Scraper came in the trap at Anacortes Station.

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D. R. Ford  
March 3, 1965  
Page 2

At this time both lines were packed to about 350 PSI and left at this pressure until 2/22/65. An inspection of the scraper from Allen Station to Anacortes Station disclosed a large dent in the sizing plate. This gave reason to believe that there was a projection in the line which caused the dent.

Monday, February 22, 1965:

10:00 a.m. - Another scraper was started from Allen Station toward Anacortes Station.

3:30 p.m. - Scraper came in the trap at Anacortes Station without any damage to the scraper.

7:00 p.m. - Hydrostatic test was started.

Tuesday, February 23, 1965:

2:00 a.m. - After 7 hours of pumping and only 720 PSI pressure on the line, it was determined the hydrostatic pump was not operating sufficiently. The test was stopped until the pump could be repaired.

10:00 a.m. - Started hydrostatic pump after repairs were made

11:00 a.m. - Pressure dropped from 830 PSI to 120 PSI. This drop in pressure was caused by the failure of the "O" ring in the unbolt coupling of the sphere launcher at Anacortes Station. The reason this "O" ring failed was due to the coupling not being tightened sufficiently before test began. Since there were no spare "O" rings available to replace the damaged one, the main line gate valve at the scraper trap was closed.

11:30 a.m. - Test was started again.

3:00 p.m. - 1300 PSI pressure was recorded at Allen Station. This pressure would reflect 1325 PSI at the Swinomish Slough crossing which is the lowest point on this section.

7:00 p.m. - Pressure was reduced to 540 PSI and repressuring was started.

9:00 p.m. - Another pump failure caused a two hour delay.

11:45 p.m. - 1300 PSI was again recorded at Allen Station. This pressure was to be held for 24 hours.

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D. R. Ford  
March 9, 1965  
Page 3

Wednesday, February 24, 1965:

7:30 a.m. - A check was made on the pressure which reflected a drop from 1300 PSI to 1760 PSI.

After an inspection of the line, a small leak was discovered at mile post 1-1/2 which was the reason for the drop in pressure. This leak was due to a faulty 2" air bleeder received from T. D. Williamson. A pin hole in the welding on the air bleeder where the flange was welded to the tapping nipple caused the leak.

10:30 a.m. - Pressure was released from the line and the leak was repaired by grinding out the old weld and rewelding the nipple to the flange.

1:00 p.m. - Started repressuring line.

4:00 p.m. - 1800 PSI was recorded at Allen Station.

Thursday, February 25, 1965:

4:00 p.m. - 24 hour test completed without any loss in pressure.

Friday, February 26, 1965:

11:00 a.m. - Started pressuring the line from Ferndale Station to Allen Station.

1:00 p.m. - 1710 PSI pressure was recorded at Samish Lake. This pressure would reflect 1625 PSI at the Hoodsack River crossing, which is the lowest point on this section.

The same trouble occurred with the "O" ring in the sphere launcher at Ferndale Station and the receiving barrel at Allen Station as had previously happened at Anacortes Station. This trouble was caught before any pressure was lost. The main line gate valves at the scraper traps were closed as had been done at Anacortes Station.

7:00 p.m. - Pressure was reduced to 500 PSI and repressuring was started.

1:00 p.m. - 1710 PSI was again recorded at Samish Lake.

Saturday, February 27, 1965:

1:00 p.m. - 24 hour test completed without any loss in pressure.

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D. K. Ford  
March 9, 1965  
Page 4

New "O" rings were installed in the scraper traps at Ferndale, Allen and Anacortes Stations and after the 24 hour test was completed the pressure was released into the scraper traps to test the traps. About 1600 PSI was applied to the traps which held without any loss in pressure.

Pressure was then reduced on both lines to 800 PSI and will be held until ready for line to go into operation.

Refer to the attached pressure recording charts which were used in these tests to record the pressure at all times.

These hydrostatic tests were supervised by H. J. Smith, certified by H. L. Tinkler with K. H. Fulton Contractor, and witnessed by LeRoy Hawk for Olympic Pipe Line Company.

  
J. H. Jarratt

HJ:aa  
Attachments (5)

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D. R. Ford

The hydrostatic test was conducted on 197,194' (Ferndale Station to Allen Station) and 44,600' (Allen Station to Anacortes Station) of 16" main line by R. H. Fulton Contractor. Listed below is a detailed breakdown of the operation.

On February 13, 1965 at 8:00 AM, started running pipe line scrapers and filling pipe with fresh water. Pumping water from Samish Lake pushing two scrapers, one toward Ferndale Station and one toward Allen Station at 1700 Sbls. per hour. At 9:30 AM noticed hole in line about half way up steep hill on North side of Samish Lake, Station 1102+00 Map S-100-9. After inspection of hole, it was determined that the hole was knocked in line by a bull dozer while building a road on the side of the hill. Completed repairs at 7:00 PM and again started pumping water. The scraper came in the trap at Allen Station at 4:30 AM 2/19/65 and at Ferndale Station at 1:30 AM 2/20/65.

At 2:00 AM 2/20/65, started running scraper and filling line with water from Allen Station to Anacortes Station. This scraper came in the trap at Anacortes Station at 7:00 AM 2/20/65. At this time both lines were packed to about 350 PSI and left at this pressure until 8:00 AM 2/22/65. An inspection of the scraper which was ran from Allen Station to Anacortes Station discovered a large dent in the sizing plate. This gave reason to believe that there was a projection in the line which caused this dent. At 10:00 AM 2/22/65, another scraper was started from Allen Station towards Anacortes Station. This scraper came in the trap at 3:30 PM without any damage to the scraper.

At 7:00 PM 2/22/65 the hydrostatic test was started. After 7 hours of pumping and had built up only 720 PSI, it was determined the hydrostatic pump wasn't operating sufficiently. At 2:00 AM 2/23/65 the test was stopped until the pump could be repaired. At 10:00 AM 2/23/65 pumping started again and at 11:00 AM the pressure dropped from 830 PSI to 120 PSI. This drop in pressure was caused by the failure of the "O" ring in the unbolt coupling of the sphere launcher at Anacortes Station. The reason this "O" ring failed was due to the coupling not being tightened sufficiently before test began. Since there were no spare "O" rings available to replace the damaged one, the main line gate valve at the scraper trap was closed and the test was started again at 11:30 AM. Pressure was applied to the line until 3:00 PM 2/23/65 at which time 1800 PSI was recorded at Allen Station. This pressure would reflect 1825 PSI at the Winomish Slough crossing which is the lowest point on this section. The pressure was held at this point for 4 hours and then reduced to 540 PSI at 7:00 PM 2/23/65. At this time repressuring of the line was started. Another pump failure at 8:00 PM caused a delay of 2 hours and at 11:45 PM 1300 PSI was again recorded at Allen Station. This pressure was supposed to be held for 24 hours. At 7:30 AM 2/24/65, a check was made on the pressure which reflected a drop from 1300 PSI to 1760 PSI. After an inspection of the line a small leak was discovered at mile post 1 1/2 which was the reason for the drop in pressure. This leak was due to a faulty 2" air bleeder received from T. D. Williamson. A pin hole in the welding on the air bleeder where the flange was welded to the tapping nipple caused the leak. At 10:30 AM, pressure was released from the line and the leak was repaired by grinding out the old weld and rewelding the nipple to the flange. At 1:00 PM repressuring of the line was started again and 1800 PSI was reached at 4:00 PM 2/24/65. This pressure was held for 24 hours without any loss in pressure.

At 11:00 AM 2/26/65, pressuring of the line from Ferndale Station to Allen Station was started and 1713 PSI at Samish Lake was reached at 3:00 PM without any major difficulty. The same trouble did occur with the "O" ring in the Sphere launcher at Ferndale Station and the receiving barrel at Allen Station as had previously happened at Anacortes Station but this trouble was caught before any pressure was lost. The main line gate valves at the scraper traps were closed as had been done at Anacortes Station. The 1713 PSI at Samish Lake would reflect 1825 PSI at the Nooksack River crossing which is the lowest point on this section. This pressure was held until 7:00 PM at which time the pressure was reduced to 500 PSI and repressuring of line was started again. 1713 PSI was reached at 10:30 PM 2/26/65. This pressure was held for 24 hours without any loss.

New "O" rings were installed in the scraper traps at Ferndale, Allen and Anacortes Stations and after the 24 hour test on the main line the pressure was released into the scraper traps to test the traps for leaks. About 1300 PSI was applied to the traps which held

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without any loss in pressur

Pressure was then droped on ~~both~~ lines to about 300 PSI and will be held until ready for line to go into operation.

Refer to the attached pressure recording charts which were used in these test to record the pressure at all times.

These hydrostatic test were supervised by H. J. Smith, Certified by H. L. Tinkler with R. H. Fulton Contractor and witnessed by Le Roy Hawk, chief inspector for Olympic Pipe Line Co.

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Lake Samish insertion 160  
 Nooksack River -3  
 High between Samish Lake & Enock 868  
 \_\_\_\_\_  
 600 x .43 = 258#  
 260 x .43 = 112#  
 \_\_\_\_\_  
 370#

Pressure at nooksack = 1815#  
 ✓ - Lake Samish = 1713#  
 ✓ - High = 1455#

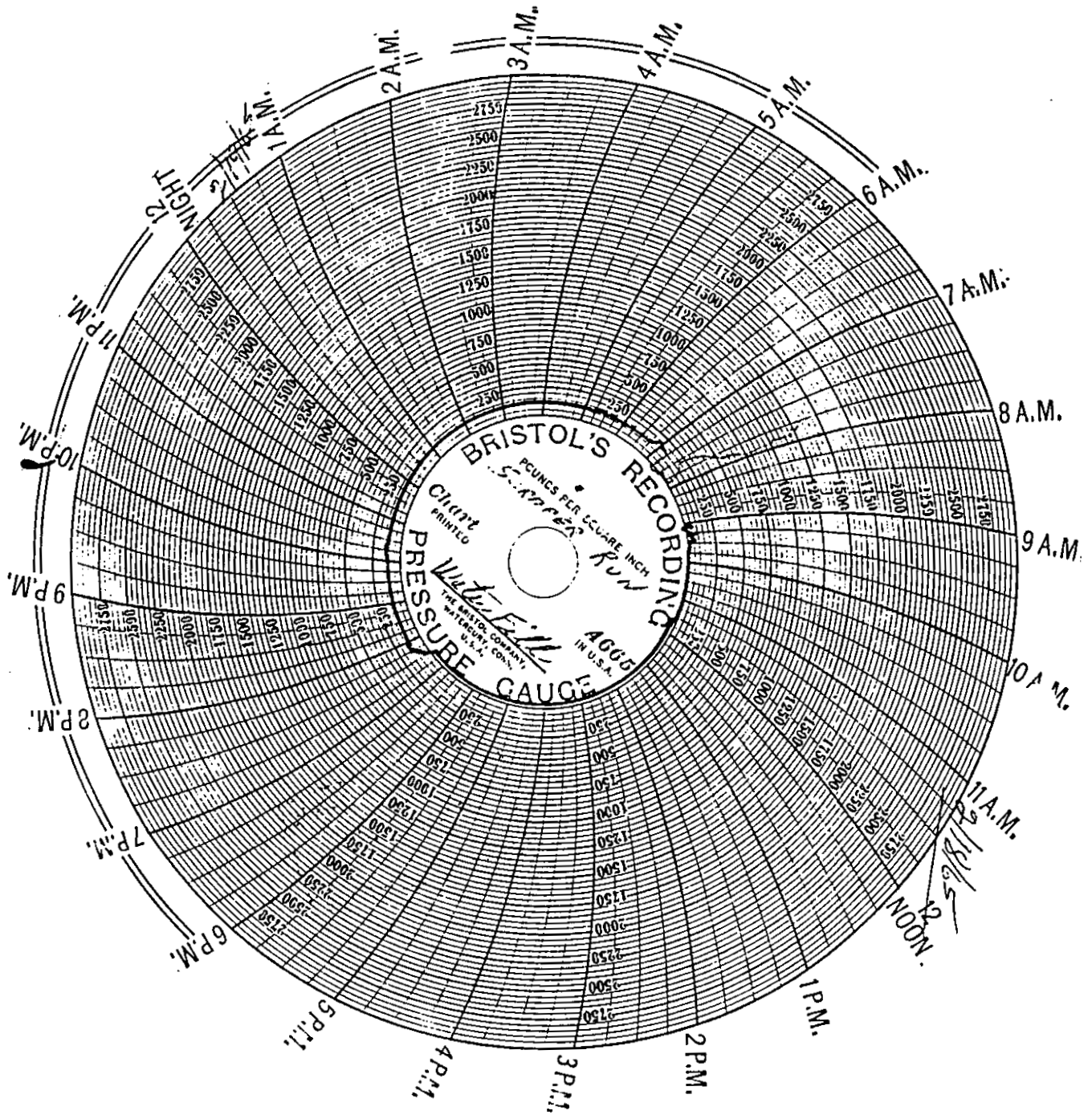
Enock to Allen  
 Pressure on Pump = 1713# at Samish Lake  
 Allen Station Ele. = 20'  
 ✓ - Pressure = 1815#  
 Enock Pressure = 1748#  
Allen

Allen to Enock  
 Anacostis - 1785#  
 Allen - 1800# Pressure at Allen Sta  
 Enock - 1875#

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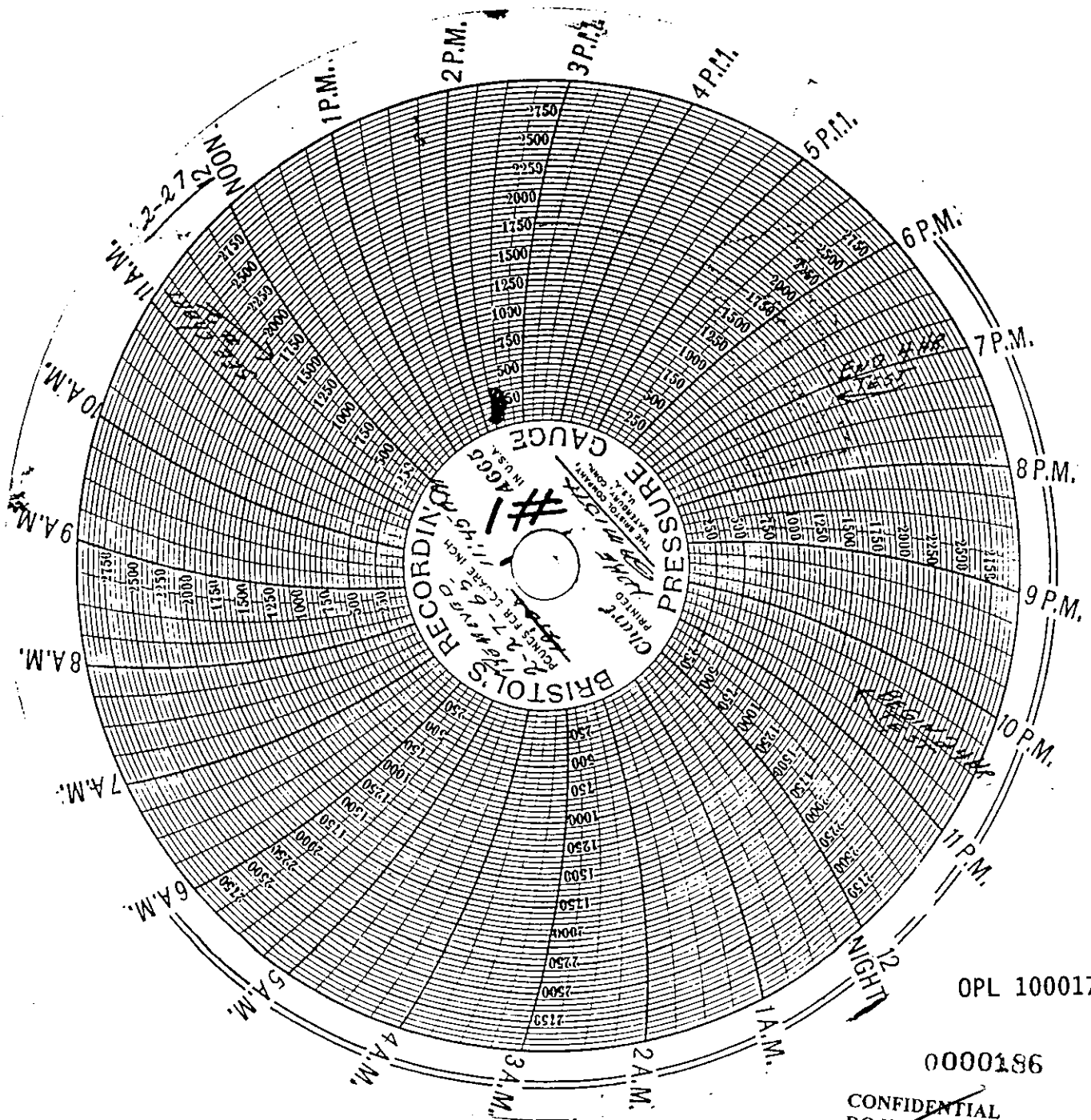


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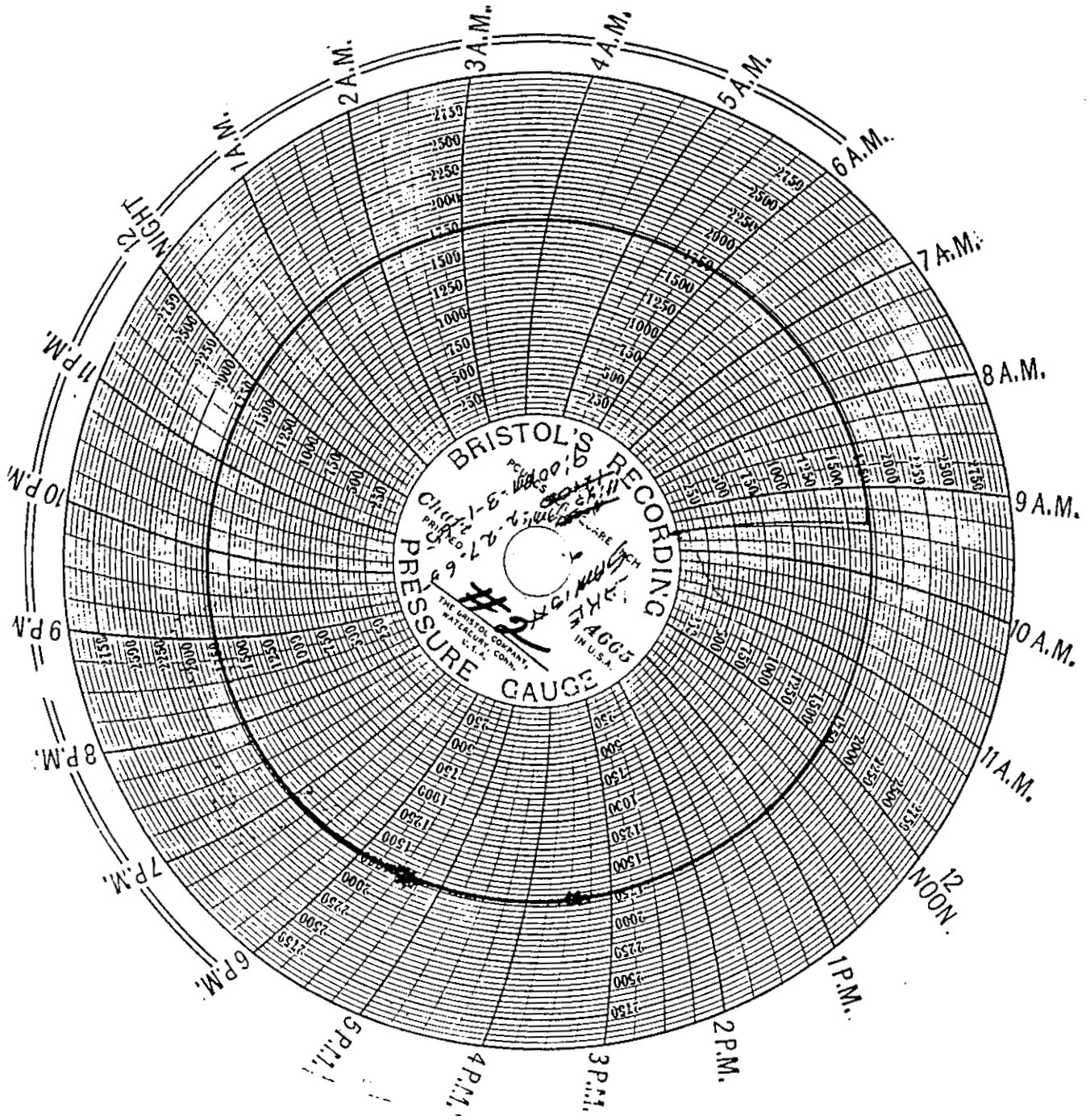


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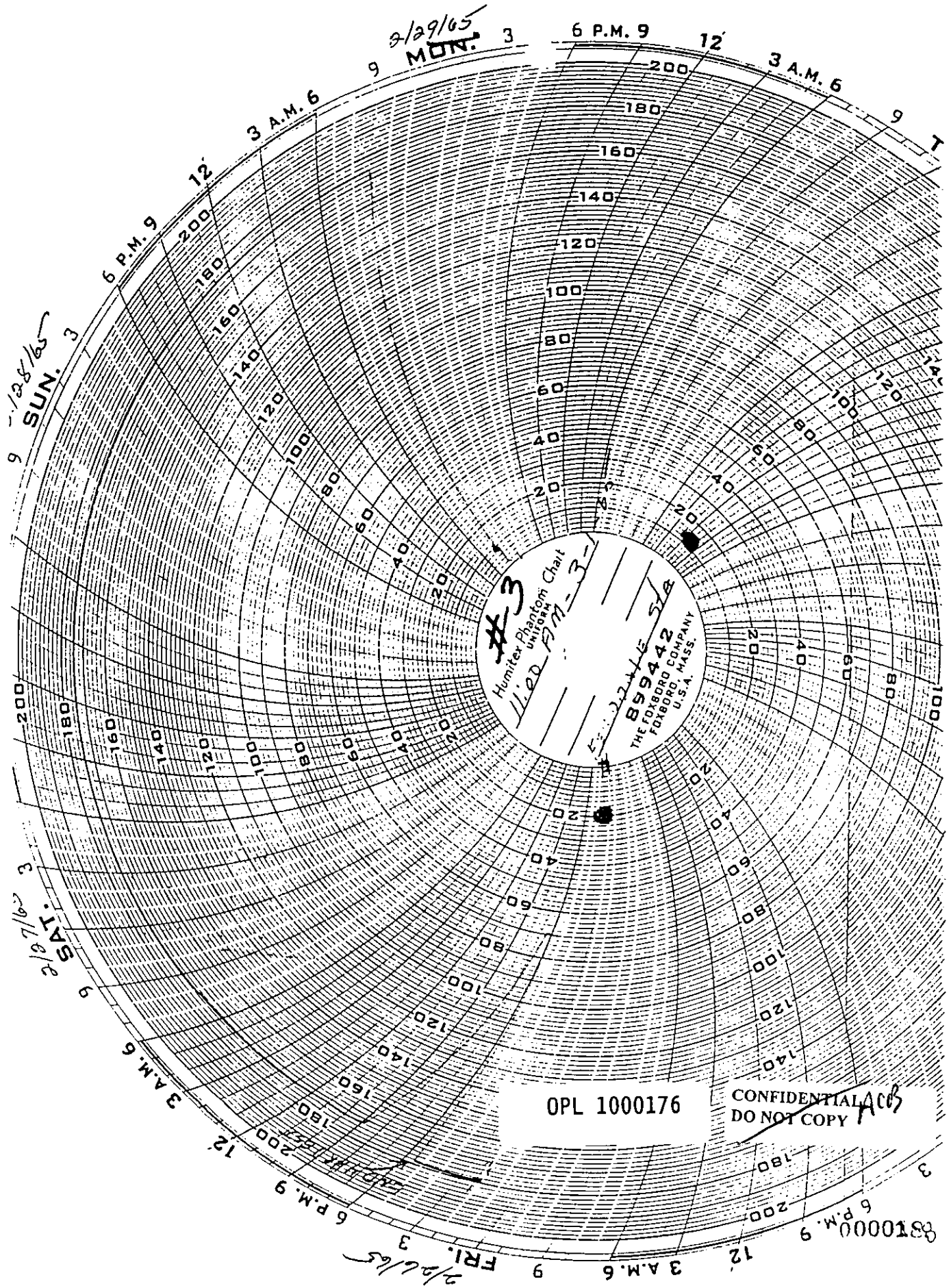


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2/28/65  
SUN. 3

2/29/65  
MON. 3

2/10/65  
SAT. 3

2/26/65  
FRI. 3

H-3  
 Humitex Phatom Chart  
 UNIFORM  
 11:20 PM - 3-  
 859442  
 THE FOXBORO COMPANY  
 FOXBORO, MASS.  
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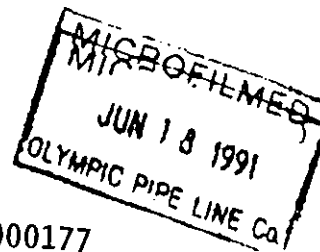
1-25-85

Ref: Hydrostatic test OL-92

This test was performed in accordance with procedures in the D.O.T. safety regulations in part 195, and Olympic Pipe Line Company hydrostatic test requirements.

This segment was tested to 1820 psi, which is 125% of 1456 psi. This is above the maximum operating pressure for ANSI series 600 fittings and therefore the maximum allowable operating pressure of this segment will be 1440 psi.

J.W. Sage  
OPL Engineer



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OLYMPIC PIPE LINE COMPANY  
P. O. BOX 238, RENTON, WASHINGTON 98055

HYDROSTATIC PRESSURE TEST  
OL-92

FERDALE TO RENTON 16",  
WHATCOM FALLS REROUTE

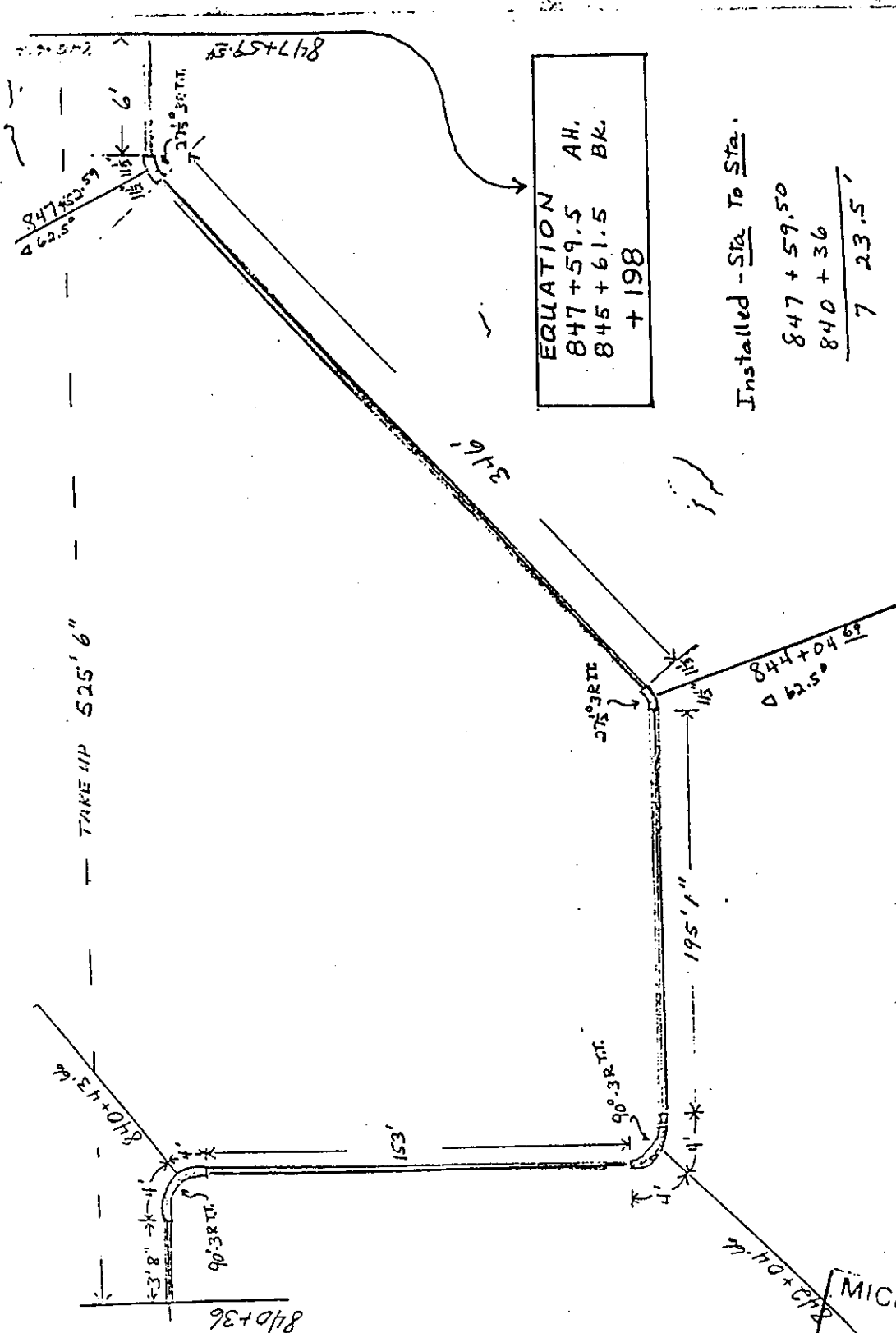
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EQUATION  
 AH.  
 847 + 59.5  
 BK.  
 845 + 61.5  
 + 198

Installed - Sta. To Sta.

|             |
|-------------|
| 847 + 59.50 |
| 840 + 36    |
| <hr/>       |
| 7 23.5'     |

Installed = 19' 10"  
 Installed = 703' 9"  
 Footage Installed = 723' 7"

Originally submitted as being 713' 5" (Difference of 10') due to Footage of Fill-in

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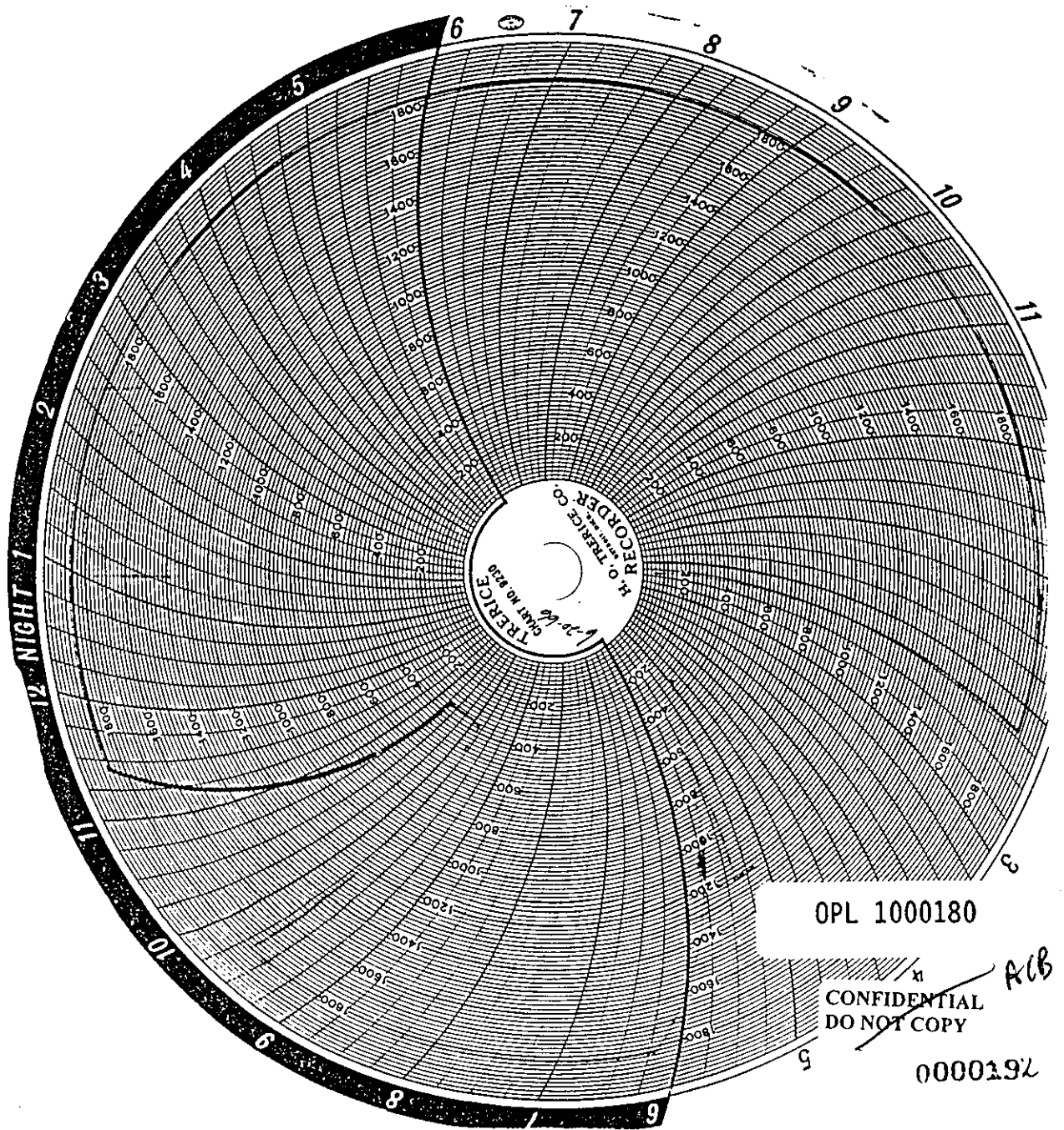
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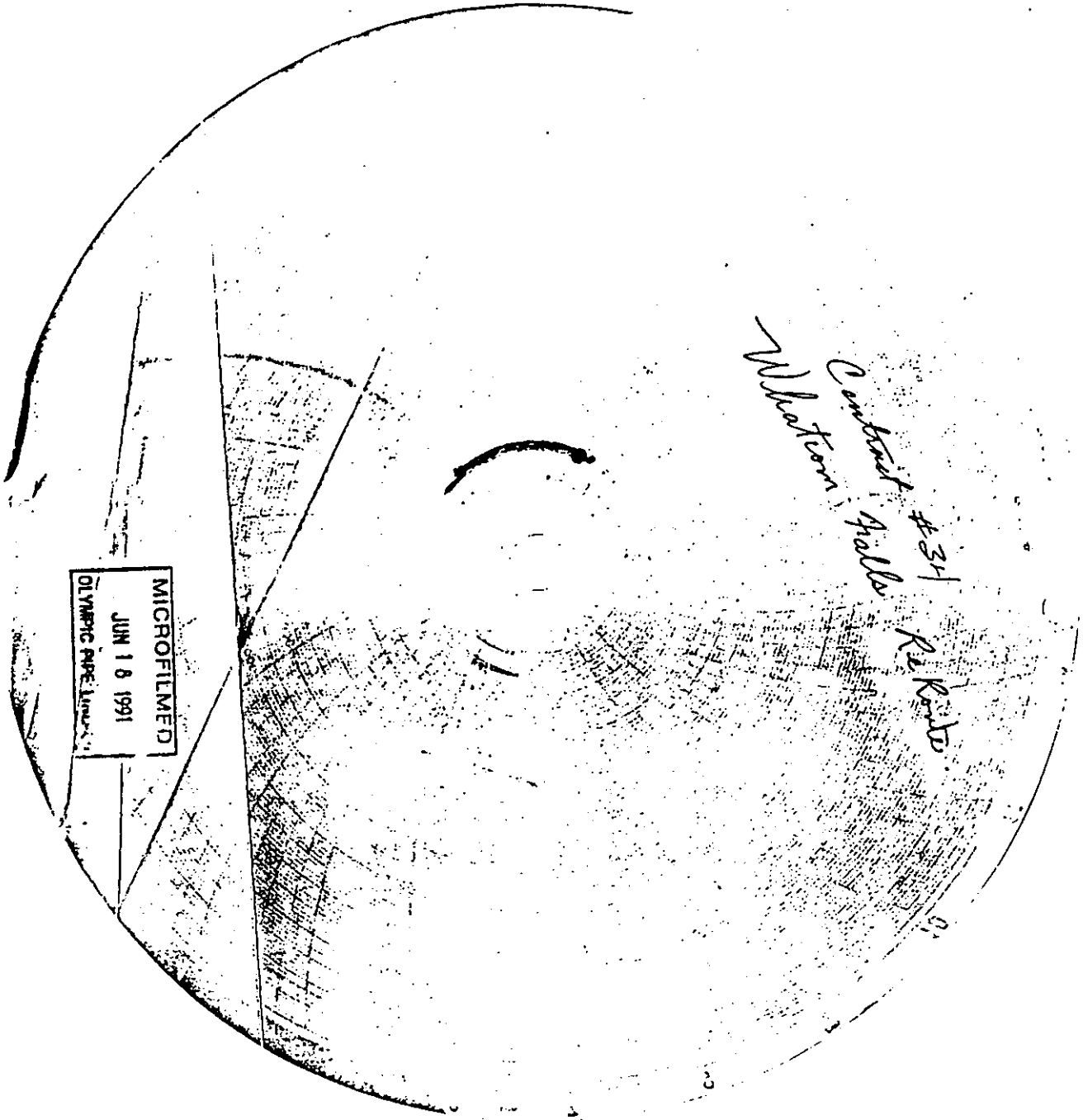


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*Wharton*  
*Central*  
*Shells*  
*#31*  
*R. R. Route*

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