National Transportation Safety Board
Internal Inspection Factual
Bellingham, Washington
Accident DCA99-MP008

Appendix 4 Tuboscope Report- March 18, 1996 with Flaw List (features and defects)

OLYMPIC PIPE LINE COMPANY

16" Products Lines

Cherry Point Station to Ferndale Station

March 18, 1996 Linalog Job #4319.01

Ferndale Station to Allen Station

March 18, 1996 Linalog Job #4319.02

Anacortes Station to Allen Station

March 20, 1996 Linalog Job #4319.03

LINALOG PLUS SURVEY REPORT

Linalog Plus Survey Report

TUBOSCOPE
PIPELINE SERVICES

OLYMPIC PIPE LINE COMPANY

16" Products Lines

Cherry Point Station to Ferndale Station

March 18, 1996 Linalog Job #4319.01

Ferndale Station to Allen Station

March 18, 1996 Linalog Job #4319.02

Anacortes Station to Allen Station

March 20, 1996 Linalog Job #4319.03

This Linalog Plus Survey Report Was Prepared For

Olympic Pipe Line Company

by

Tuboscope Pipeline Services, Inc. 2835 Holmes Road Houston, Texas 77051 (713) 799-5413

Sales Representative	Pipeline Inspector	Survey Analyst
ROBERT WATT	TERRY McCAIN	RONNIE ORSAK

April 11, 1996

Linalog Plus Survey Report

TUBOSCOPE
PIPELINE SERVICES

16" Products Line - Cherry Point Station to Ferndale Station
Linalog Job Number 4319.01

This section of Olympic Pipe Line Company line was surveyed by Pipeline Services in March of 1996. The 5.07 mile section, located in Washington, is reported to be constructed primarily of grade X-52, ERW manufactured, .312 inch nominal wall pipe.

Inspection Tool Run

The survey launched March 18, at 10:20 a.m., was accepted as the Log of Record. Products propelled the Linalog survey tool for approximately 1 hour at an average of 5.07 miles per hour. No problems were reported during this run.

Verification Dig Sites

No verification digs were performed while Pipeline Services personnel were on location.

Survey History With Linalog

This is a repeat inspection of this line by Tuboscope Pipeline Services. The prior inspection was completed September 8, 1992 under Linalog Job Number 2766.01. Refer to Special Log Notations for comments regarding changes to interpretation procedures and comparisons of data to previous surveys.

Results

The completed Linalog survey of this section resulted in the following findings. Total number of:

Grade 1 Joints 20-30% Pipe Wall Loss	Grade 2 Joints 30-40% Pipe Wall Loss	Grade 3 Joints 40-50% Pipe Wall Loss	Grade 4 Joints 50-60% Pipe Wall Loss	Grade 5 Joints Greater Than 60% Pipe Wall Loss
0	0	0	0	0

The results listed above are the total number of graded joints in this section of pipeline. For a detailed listing of the graded joints, see your Linalog Plus Flaw List. Typical accuracy tolerance is ± 15% of reported defect depth.

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Linalog Plus 2.0

Linalog Plus Survey Report

TUBOSCOPE
PIPELINE SERVICES

16" Products Line - Ferndale Station to Allen Station
Linalog Job Number 4319.02

This section of Olympic Pipe Line Company line was surveyed by Pipeline Services in March of 1996. The 37.4 mile section, located in Washington, is reported to be constructed primarily of grade X-52, ERW manufactured, .312 inch nominal wall pipe.

Inspection Tool Run

The survey launched March 18, at 3:20 p.m., was accepted as the Log of Record. Products propelled the Linalog survey tool for approximately 8 hours at an average of 4.67 miles per hour. No problems were reported during this run.

Verification Dig Sites

No verification digs were performed while Pipeline Services personnel were on location.

Survey History With Linalog

This is a repeat inspection of this line by Tuboscope Pipeline Services. The prior inspection was completed December 15, 1980 under Linalog Job Number 1083.00. Refer to Special Log Notations for comments regarding changes to interpretation procedures and comparisons of data to previous surveys.

Results

The completed Linalog survey of this section resulted in the following findings. Total number of:

Grade 1 Joints	Grade 2 Joints	Grade 3 Joints	Grade 4 Joints	Grade 5 Joints
20-30% Pipe Wall Loss	30-40% Pipe Wall Loss	40-50% Pipe Wall Loss	50-60% Pipe Wall Loss	Greater Than 60% Pipe Wall Loss
16	1	2	0	0

The results listed above are the total number of graded joints in this section of pipeline. For a detailed listing of the graded joints, see your Linalog Plus Flaw List. Typical accuracy tolerance is ± 15% of reported defect depth.

Linalog Plus Survey Report

TUBOSCOPE
PIPELINE SERVICES

16" Products Line - Anacortes Station to Allen Station
Linalog Job Number 4319.03

This section of Olympic Pipe Line Company line was surveyed by Pipeline Services in March of 1996. The 8.44 mile section, located in Washington, is reported to be constructed primarily of grade X-52, ERW manufactured, .312 inch nominal wall pipe. Also reported, are sections of .375 and .500 inch nominal wall pipe.

Inspection Tool Run

The survey launched March 20, at 8:00 p.m., was accepted as the Log of Record. Products propelled the Linalog survey tool for approximately 1 hour 45 minutes at an average of 4.82 miles per hour. No problems were reported during this run.

Verification Dig Sites

No verification digs were performed while Pipeline Services personnel were on location.

Survey History With Linalog

This is a repeat inspection of this line by Tuboscope Pipeline Services. The prior inspection was completed September 10, 1992 under Linalog Job Number 2766.02. Refer to Special Log Notations for comments regarding changes to interpretation procedures and comparisons of data to previous surveys.

Results

The completed Linalog survey of this section resulted in the following findings. Total number of:

Grade 1 Joints	Grade 2 Joints	Grade 3 Joints	Grade 4 Joints	Grade 5 Joints
20-30% Pipe Wall Loss	30-40% Pipe Wall Loss	40-50% Pipe Wall Loss	50-60% Pipe Wall Loss	Greater Than 60% Pipe Wall Loss
0	0	0	0	0

The results listed above are the total number of graded joints in this section of pipeline. For a detailed listing of the graded joints, see your Linalog Plus Flaw List. Typical accuracy tolerance is ± 15% of reported defect depth.

Linalog Plus 2.0

Linalog Plus Survey Report

TUBOSCOPE
PIPELINE SERVICES

Special Log Notations

The results of this survey may vary in comparison to previous inspections performed by Tuboscope Pipeline Services. Changes in pipeline conditions may affect the final survey results. Also, refinements in the Linalog survey tool, data processing procedures and grading techniques continue to improve the accuracy of corrosion inspections.

Conclusion

The results listed here and in the flaw list are Pipeline Services' best evaluation of the condition of a pipeline at the time of the survey. This evaluation is based on information provided by you, our customer, and data gathered from surveys similar to yours.

Accompanying this report are one Linalog Plus Demonstration Disk, two Linalog Plus 2.02 Software Installation Disks, one Master Data Disk and one Working Data Disk of the survey. This report is the final element of the Linalog survey process.

Thank you for your trust and confidence in Tuboscope Pipeline Services. For clarification of any aspect of a survey, please contact our office. We welcome the opportunity to provide continued service to Olympic Pipe Line Company.

Linalog Plus 2.0

Linalog Plus Reporting Criteria

TUBOSCOPE
PIPELINE SERVICES

Linalog Plus reporting criteria calculate the Pressure Related Ratios (PR Ratios) presented in the Linalog Plus PR Flaw List.

The PR Ratio considers the radial depth and axial length of each reported defect to provide an estimated pressure based upon the ANSI B31G pressure formula. The calculation results are designed to serve as a reference tool for the prioritization of physical defect investigations.

The criteria for corrosion, as defined by Linalog Plus, are as follow:

Defect Length (L) is defined as the affected area measured parallel to the longitudinal axis of the pipe. Affected area is defined as a region on the pipe where the physical separation between individual defects does not exceed one inch (two and one half centimeters) longitudinally, and/ or four inches (10 centimeters) circumferentially.

The criterion applied for defect length calculations is the linear (axial) distance between the start and end points of an affected defect area, with the boundaries of the defect determined as all body wall loss greater than or equal to 10% of the wall thickness.

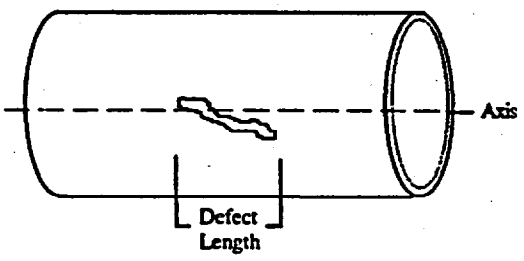

Figure 1

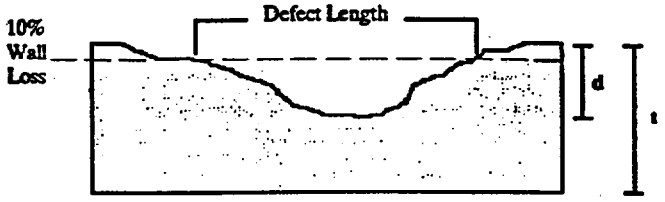

Figure 2

Defect Depth is defined as a percentage of body wall loss up to 80% penetration. Linalog Plus grading criteria are established for defect depths from 20% to 80% penetration, dependent upon line conditions. Defects falling outside this range may not be subject to the same reporting parameters. The value of the reported defect depth is equal to the measured defect depth (d) divided by parent wall thickness (t). See Figure 2.

Linalog Plus Operational Requirements

TUBOSCOPE PIPELINE SERVICES

Hardware

Component	Minimum	Recommended	Preferred
Computer	386 SX	486 DX2	Pentium
RAM (random-access memory)	4MB	8MB	16MB
Monitor	VGA	SVGA	SVGA
DOS (disk operating system)	5.0	5.0 (or later)	6.0
Microsoft® Windows™ Version	3.1	3.1 (or later)	3.1 (or later)
Available Hard Drive Space	5MB	10MB	10MB

Software

Determine the version of Windows in use on your computer and refer to the following:

Windows 3.1:

Additional statements in your CONFIG.SYS file may be required.

To access the CONFIG.SYS file editor:

1. Exit Windows.
2. At the DOS prompt (C:\>), type the following statement and select "Enter":

   `EDIT CONFIG.SYS`

3. Ensure the following statements are present at the beginning of the CONFIG.SYS file, and appear in the same order as listed below:

`DEVICE=C:\DOS\HIMEM.SYS`	(or)	`DEVICE=C:\WINDOWS\HIMEM.SYS`
`DEVICE=C:\DOS\EMM386.EXE NOEMS`	(or)	`DEVICE=C:\WINDOWS\EMM386.EXE NOEMS`
`DOS=HIGH,UMB`		
`FILES=40`	(or)	`FILES=` (a value greater than 40)

4. Statements other than those above should be left unchanged.
5. To save changes and exit the CONFIG.SYS file editor, strike the following keys in sequence:

   `Alt Enter S Alt Enter X`

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Linalog Plus
Operational Requirements

TUBOSCOPE
PIPELINE SERVICES

Software - Windows 3.1 (continued):

An additional path statement in your AUTOEXEC.BAT file may be required.

To access the AUTOEXEC.BAT file editor:

1. At the DOS prompt(C:\>), type the following:
   edit autoexec.bat

2. Ensure that the following statements are included in the AUTOEXEC.BAT file:
   SET TEMP=C:\TEMP or **SET TEMP=C:\WINDOWS\TEMP**
   LH C:\DOS\SHARE.EXE

3. To save changes and exit the AUTOEXEC.BAT file editor, strike the following keys:
   Alt Enter S Alt Enter X

After completing the changes to the CONFIG.SYS and AUTOEXEC.BAT files, turn off the computer and restart it to allow the new settings to take effect.

Temporary Files:

After making the above changes, be sure to go to the Windows File Manager and create a **TEMP** directory under drive **C**, or under **C:\WINDOWS** . After extended use of Linalog Plus software, the operator must check the **TEMP** directory. Temporary files are created while using Linalog Plus, which may or may not be automatically removed from the **TEMP** directory upon exiting the program. **~.TMP** files should be deleted occasionally to prevent unneccessary use of disk space.

Optimization and Defragmentation Software:

The use of optimization and defragmentation programs is recommended after extended use of Linalog Plus software. DOS versions 6.0 and later contain *Scandisk* and *Defrag*. These are accessed by typing **Scandisk** or **Defrag** at the **C:>** prompt. Each of these applications contains a help file. Delete **~.TMP** files under **C:\TEMP** or **C:\WINDOWS\TEMP** before running *Scandisk* and *Defrag*.

Windows for Workgroups 3.1:

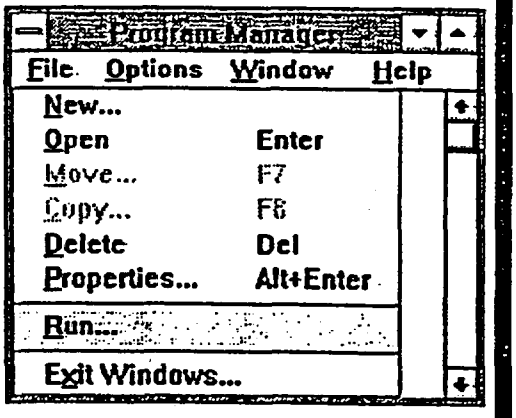
No additional path statements are typically required to use Linalog Plus versions 2.0 and later with Windows for Workgroups 3.1. If difficulties occur while using Linalog Plus, ensure the CONFIG.SYS and AUTOEXEC.BAT files contain the statements as outlined above.

Linalog Plus
Installing The Software

TUBOSCOPE
PIPELINE SERVICES

Linalog Plus versions 2.0 and later must be installed on your hard drive using the enclosed installation disks.

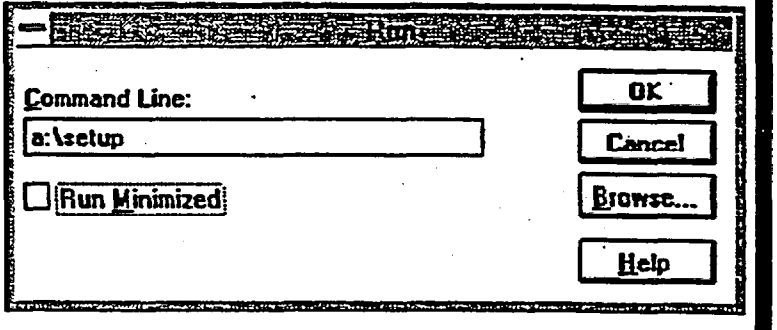
Note: Linalog Plus versions 2.0 and later are not currently compatible with corrosion surveys performed prior to January 1, 1995. Earlier versions of Linalog Plus currently installed on your computer should be kept for use with surveys performed before 1995.



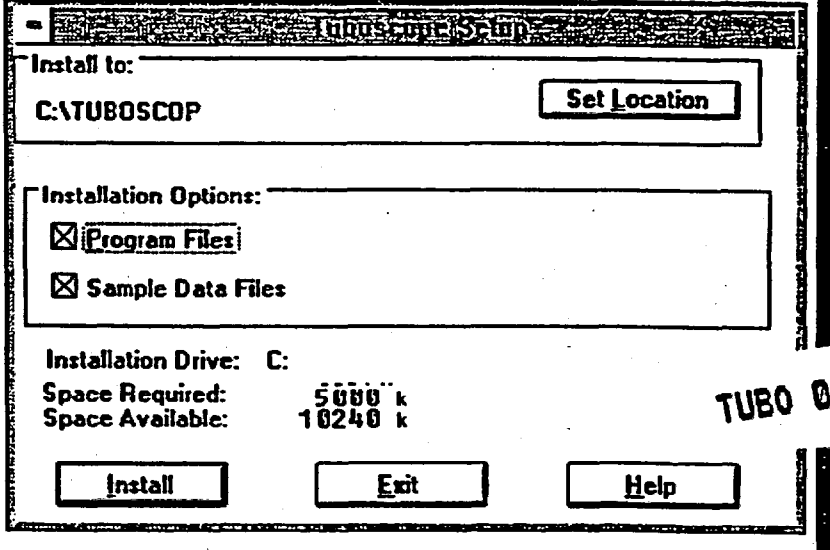
1. Insert installation disk number one into drive A (or B).

2. At the Windows Program Manager, select File and Run.

3. In the Command Line box, enter a:\setup (or b:\setup), select OK.



4. After "Initializing Setup", Linalog Plus will be installed to the C:\TUBOSCOP directory. An alternate directory may be specified by selecting Set Location, and typing the disk drive and directory to which the software is to be installed.



5. Sample data files are provided as an installation option to familiarize users with Linalog Plus. These files are not required to run the program, and may be omitted by deselecting the Sample Data Files option.

6. Select Install and follow the program's directions. When installation is complete, return to the Windows Program Manager. Insert the Linalog Plus demonstration disk into drive A (or B). Select File and Run from the Program Manager menu bar. Type a:\demo (or b:\demo) in the Command Line box. Select OK. View the demonstration. Use the Pause button when necessary to thoroughly review each demonstration screen.

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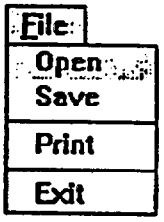
Linalog Plus
Loading Survey Data

TUBOSCOPE
PIPELINE SERVICES

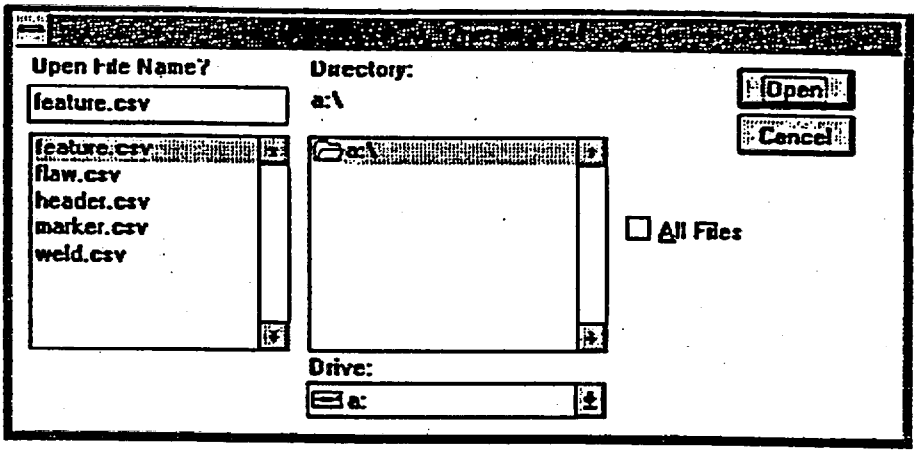
Interpreted survey data for this pipeline is contained on floppy disks accompanying this report. Data is viewed by loading it into the Linalog Plus software as outlined below:

1. Double click on the **Linalog Plus** icon located in the Program Manager.



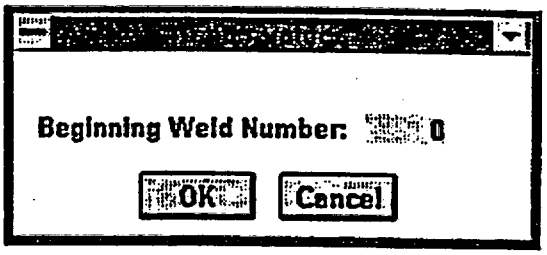
2. Insert one of the survey data disks into drive A (or B).

3. From the Linalog Plus menu bar, select **File** and **Open**. The file selection box will appear, as shown to the right.



4. Select drive A (or B) from the **Drive** selection.

5. Select a **.csv** file. These files are linked, so that opening one file automatically opens all of the data files for a particular survey. Select **Open**.



6. Enter the beginning weld number and select **OK**. If the default value of "0" is used, welds on the flaw list will not be numbered. If "1" or another value is used, welds will be numbered, beginning with that value.

7. Linalog Plus may require several minutes to load survey data from drive A or B. Numerous calculations are performed during the loading sequence. The status of the loading process is indicated by a text box in the top, right corner of the screen. The final text box indicates "**File Open Complete**". This text box may or may not turn off when calculations are complete and data is ready for viewing. Moving the mouse or pressing a key turns off this final text box.

   An alternate method for loading survey data is to create a subdirectory to **C:\TUBOSCOP**, and copy the data to this subdirectory. Storing survey data on drive C shortens loading time and protects the original data disks from unintended editing. This method may not be practical if harddisk space is limited.

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8. For further Linalog Plus help, view the program's help file, the demonstration disk accompanying this report, the data disk survey synopsis page 2; or call our office at (713) 799-5413.

Flaw List

Olympic Pipeline

09/08/99

4319.02

Ferndale to

Event	Wheel Count	Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	1,655 ' 9.1 "							Possible Mash
Defect	1,800 ' 10.6 "		8 ' 7.4 "	5	24	0 ' 0.4 "	4.8	Possible Mill/Mechanical
Feature	2,946 ' 0.5 "							Possible Attachment
Defect	3,722 ' 2.3 "		60 ' 4.5 "	4	28	0 ' 0.5 "	4.9	Possible Mill/Mechanical
Defect	4,143 ' 8.2 "		0 ' 6.3 "	4	33	0 ' 1.1 "	4.8	
Feature	4,702 ' 0.0 "							Begin Casing
Feature	4,756 ' 0.0 "							End Casing
Defect	5,510 ' 7.7 "		22 ' 6.2 "	6	24	0 ' 0.3 "	4.9	Possible Mill/Mechanical
Feature	6,610 ' 9.2 "							Possible Mill/Mechanical
Feature	7,173 ' 7.8 "							Possible Mill/Mechanical
Feature	9,958 ' 0.0 "							Begin Casing
Feature	10,009 ' 0.0 "							End Casing
Feature	14,421 ' 0.0 "							Begin Casing
Feature	14,463 ' 0.0 "							End Casing
Feature	15,326 ' 0.0 "							Begin Casing
Feature	15,337 ' 0.0 "							End Casing
Defect	16,241 ' 11.9 "		58 ' 4.5 "	4	43	0 ' 0.3 "	4.9	Possible Mill/Mechanical
Feature	17,936 ' 0.0 "							Begin Casing
Feature	18,003 ' 0.0 "							End Casing
Feature	23,121 ' 0.0 "							Begin Casing
Feature	23,196 ' 0.0 "							End Casing
Feature	25,809 ' 0.0 "							Begin Casing
Feature	25,843 ' 0.0 "							End Casing
Feature	32,985 ' 0.0 "							Begin Casing
Feature	33,097 ' 0.0 "							End Casing
Feature	35,627 ' 6.9 "							Tie-In

Flaw List

Olympic Pipeline

Ferndale to

Event	Wheel Count	Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	35,661 ' 0.0 "							Begin Casing
Feature	35,835 ' 0.0 "							End Casing
Feature	35,859 ' 0.5 "							Tie-In
Feature	36,765 ' 0.0 "							Begin Casing
Feature	36,821 ' 0.0 "							End Casing
Feature	36,873 ' 0.0 "							Begin Casing
Feature	37,438 ' 0.0 "							End Casing
Feature	37,481 ' 0.0 "							Begin Casing
Feature	37,633 ' 0.0 "							End Casing
Feature	37,745 ' 0.0 "							Begin Casing
Feature	37,785 ' 0.0 "							End Casing
Defect	39,271 ' 8.6 "		12 ' 8.3 "	6	25	0 ' 3.1 "	4.9	Possible Mill/Mechanical
Feature	41,920 ' 0.0 "							Begin Casing
Feature	41,990 ' 0.0 "							End Casing
Defect	42,301 ' 2.5 "		50 ' 9.2 "	4	20	0 ' 0.9 "	4.9	DCI
Defect	42,421 ' 1.5 "		0 ' 5.8 "	5	21	0 ' 2.0 "	4.9	DCI
Feature	47,048 ' 0.0 "							Begin Casing
Feature	47,094 ' 0.0 "							End Casing
Feature	52,343 ' 0.0 "							Begin Casing
Feature	52,419 ' 0.0 "							End Casing
Feature	54,784 ' 0.9 "							Tap
Feature	56,921 ' 0.0 "							Begin Casing
Feature	56,973 ' 0.0 "							End Casing
Feature	58,508 ' 4.8 "							Possible Attachment
Defect	58,563 ' 10.7 "		59 ' 3.6 "	7	27	0 ' 0.5 "	4.9	
Defect	64,388 ' 1.0 "		3 ' 0.5 "	1	26	0 ' 0.8 "	4.9	Possible Mill/Mechanical

Flaw List

Event	Wheel Count	Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	65,259 ' 0.0 "							Begin Casing
Feature	65,446 ' 0.0 "							End Casing
Defect	68,026 ' 1.2 "		9 ' 1.1 "	1	23	0 ' 0.5 "	4.9	Possible Mill/Mechanical
Defect	68,695 ' 5.4 "		55 ' 2.3 "	5	26	0 ' 0.8 "	4.8	
Defect	68,695 ' 8.2 "		55 ' 5.1 "	5	21	0 ' 0.4 "	4.8	
Feature	69,398 ' 0.0 "							Begin Casing
Feature	69,576 ' 0.0 "							End Casing
Feature	70,173 ' 0.0 "							Begin Casing
Feature	70,185 ' 0.0 "							End Casing
Defect	72,781 ' 9.4 "		17 ' 3.0 "	7	24	0 ' 0.6 "	4.7	
Feature	72,916 ' 0.0 "							Begin Casing
Feature	72,991 ' 0.0 "							End Casing
Feature	73,935 ' 8.7 "							Tap
Feature	79,762 ' 0.0 "							Begin Casing
Feature	79,846 ' 0.0 "							End Casing
Feature	81,277 ' 0.0 "							Begin Casing
Feature	81,767 ' 0.0 "							End Casing
Feature	83,925 ' 1.2 "							Possible Attachment
Feature	83,966 ' 11.5 "							Possible Attachment
Feature	83,970 ' 4.4 "							Possible Attachment
Feature	83,975 ' 1.3 "							Possible Attachment
Feature	84,261 ' 3.4 "							Tap
Feature	84,402 ' 6.6 "							Possible Wrinkle Bend
Defect	84,416 ' 9.4 "		1 ' 5.8 "	1	23	0 ' 0.4 "	4.8	Possible Mill/Mechanical
Feature	84,416 ' 9.6 "							Possible Mash
Feature	85,496 ' 0.0 "							Begin Casing

Flaw List

4319.02

Ferndale to

Event	Wheel Count	Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	85,560 ' 0.0 "							End Casing
Feature	85,693 ' 0.4 "							Flange
Feature	85,752 ' 0.0 "							Begin Casing
Feature	85,816 ' 0.0 "							End Casing
Feature	97,154 ' 2.1 "							Tap
Defect	100,085 ' 0.3 "		12 ' 1.3 "	10	29	0 ' 0.5 "	4.8	Possible Mill/Mechanical
Feature	101,768 ' 0.0 "							Begin Casing
Feature	101,924 ' 0.0 "							End Casing
Feature	106,198 ' 6.6 "							Tap
Feature	106,534 ' 0.0 "							Begin Casing
Feature	107,017 ' 0.0 "							End Casing
Feature	107,033 ' 0.0 "							Begin Casing
Feature	107,114 ' 0.0 "							End Casing
Feature	107,508 ' 0.0 "							Begin Casing
Feature	107,514 ' 0.0 "							End Casing
Defect	107,989 ' 4.2 "		3 ' 1.1 "	8	22	0 ' 2.2 "	4.8	Possible Mill/Mechanical
Feature	109,568 ' 6.7 "							Tap
Defect	110,309 ' 3.7 "		39 ' 0.3 "	6	47	0 ' 2.0 "	4.8	
Feature	111,092 ' 4.5 "							Tap
Feature	113,491 ' 5.0 "							Tap
Feature	115,850 ' 9.0 "							Tap
Feature	115,852 ' 0.2 "							Tap
Feature	115,856 ' 7.3 "							Tap
Feature	116,131 ' 0.0 "							Begin Casing
Feature	116,181 ' 0.0 "							End Casing
Feature	116,184 ' 6.2 "							Flange

Flaw List

4319.02

Ferndale to

Event	Wheel Count	Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	120,010 ' 2.8 "							Tap
Defect	122,557 ' 6.4 "		26 ' 11.2 "	5	20	0 ' 2.5 "	4.9	DCI
Feature	134,954 ' 8.2 "							Tap
Defect	135,576 ' 10.1 "		76 ' 10.6 "	4	25	0 ' 0.4 "	4.9	Possible Mill/Mechanical
Feature	139,525 ' 3.7 "							Tap
Feature	146,881 ' 0.9 "							Tap
Feature	147,022 ' 5.5 "							Tie-In
Feature	147,033 ' 0.0 "							Begin Casing
Feature	147,092 ' 0.0 "							End Casing
Feature	152,503 ' 11.4 "							Tap
Feature	154,141 ' 0.0 "							Begin Casing
Feature	154,203 ' 0.0 "							End Casing
Feature	154,391 ' 3.9 "							Tap
Feature	159,376 ' 0.0 "							Begin Casing
Feature	159,442 ' 0.0 "							End Casing
Feature	164,232 ' 0.0 "							Begin Casing
Feature	164,360 ' 0.0 "							End Casing
Feature	167,913 ' 0.0 "							Begin Casing
Feature	167,954 ' 0.0 "							End Casing
Feature	169,989 ' 0.0 "							Begin Casing
Feature	170,029 ' 0.0 "							End Casing
Feature	171,055 ' 0.0 "							Begin Casing
Feature	171,154 ' 0.0 "							End Casing
Feature	175,417 ' 0.0 "							Begin Casing
Feature	175,481 ' 0.0 "							End Casing
Feature	175,536 ' 1.9 "							Flange

Flaw List

Event	Wheel Count		Joint Length	Distance from Weld	Clock	Depth	Defect Length	Speed	Comments
Feature	180,679 '	0.0 "							Begin Casing
Feature	180,733 '	0.0 "							End Casing
Feature	183,577 '	4.8 "							Begin Casing
Feature	183,595 '	0.0 "							End Casing
Feature	186,002 '	0.0 "							Begin Casing
Feature	186,084 '	0.0 "							End Casing
Feature	191,237 '	2.6 "							Tap
Feature	191,318 '	0.0 "							Begin Casing
Feature	191,376 '	0.0 "							End Casing
Feature	196,296 '	2.7 "							Tap
Feature	196,298 '	6.7 "							Tap
Feature	196,299 '	2.7 "							Tap
Feature	196,775 '	0.0 "							Begin Casing
Feature	196,817 '	0.0 "							End Casing
Feature	197,417 '	8.4 "							Tap